Sapawe Forest
Independent Forest Audit
2002-2007

KBM FORESTRY CONSULTANTS INC.

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1.0 Executive Summary

This audit report for the Sapawe Forest (the Forest) is the result of an Independent Forest Audit (IFA) conducted by KBM Forestry Consultants Inc. (KBM) under contract to the Ontario Ministry of Natural Resources (MNR). Declaration Order MNR-71, as amended by MNR-71/2, requires that all Crown forests in Ontario undergo an IFA at least every five years. Regulation 160/04 of the Crown Forest Sustainability Act (CFSA) sets out the specific requirements for conducting the audits.

The Sapawe Forest audit covers the five-year period April 1, 2002 to March 31, 2007 and portions of two forest management plans. Atikokan Forest Products Ltd. (AFP) was the Sustainable Forest Licence (SFL) holder since 1998 and, together with MNR Fort Frances District and MNR's Atikokan Area Office, was the principal auditee.

The Sapawe Forest is located in MNR's Northwest Region and occupies a total of approximately 3,015 km^2, comprised almost entirely of Crown land. The Forest is bounded to the south by Quetico Provincial Park, Ontario's second largest wilderness class park. The Forest supplies wood principally to the AFP sawmill located at Sapawe. Chips produced as a by-product of the sawmill operation are exchanged for roundwood with the AbitibiBowater pulp mill in Fort Frances. Both Fibratech Manufacturing Inc. (formerly Proboard Ltd.) in Atikokan and Manitou Lumber have annual fibre commitments that are identified in the SFL.

The purpose of the IFA is to assess compliance to forest management plans (FMPs) and legislated requirements, compare planned to actual activities including effectiveness, assess compliance to licence conditions and the effectiveness of action plans resulting from previous audits.

Based on the audit, 11 Recommendations were made, including licence extension. Recommendations may arise from audit team observations of material non-conformances or may be developed to address situations in which the audit team identifies a significant lack of effectiveness in forest management activities. The most significant findings arising from the audit are discussed below.

The audit team observed that some regeneration and Free to Grow (FTG) survey results were questionable. Some blocks would have benefited from being divided into smaller stands and the sample intensity for FTG may have too few plots to produce reliable results in some instances. The system could be improved upon to better assess silviculture effectiveness and for updating the forest resource inventory.

The amount of plantation tending has declined as has chemical application rates. The audit team is concerned that tending operations are not fully effective and that the decline in tended area does not support plan objectives to reduce the amount of area occupied by the mixedwood forest unit.

The audit team concluded that, with the exceptions noted in the audit report, management of the Sapawe Forest was in compliance with legislation, regulations and policies and was effective during the term of the audit. The Sapawe Forest was also managed in general compliance with the terms of SFL No. 542441 held by Atikokan Forest Products Ltd. Payment of arrears to the Forestry Futures Trust Fund and for Crown charges are the subject of discussions between MNR and AFP. Forest sustainability is being achieved as assessed through the Independent Forest Audit Process and Protocol. The audit team recommended that the Minister extend the term of the SFL for the Sapawe Forest.

Rod Seabrook, CEA(SFM), EMS(LA) – Lead Auditor on behalf of the Audit Team

2.0 Introduction

2.1 Audit Process

2.1.1 Purpose

The Independent Forest Audit Process and Protocol[1] (IFAPP) was developed by Ontario Ministry of Natural Resources (MNR) to provide a comprehensive and consistent method of evaluating forest management activities on Crown land. The IFAPP states that the purpose of an Independent Forest Audit (IFA) is to:

- Assess the extent of forest management planning compliance with the Forest Management Planning Manuals[2] (FMPM) and the Crown Forest Sustainability Act[3] (CFSA) 1994;
- Assess the extent of compliance of forest management activities with the CFSA and with the forest management plans (FMPs), the manuals approved under the CFSA and the applicable guides;
- Compare planned versus actual forest management activities;
- Assess the effectiveness of forest management activities in meeting the forest management objectives set out in the FMP, as measured in relation to the criteria established for the audit;
- Assess the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit; and,
- Assess the licensee's compliance with the terms and conditions of the Sustainable Forest Licence (SFL).

2.1.2 Audit Process Overview

The IFAPP contains eight guiding principles with 152 criteria and 403 audit procedures, 318 of which are potentially applicable to the Sapawe Forest (the Forest). The audit procedures serve as a framework to provide a structured approach to evaluating whether forest management activities meet the requirements governing forestry practices on Crown land in Ontario. Since the IFAPP contains procedures that pertain to the SFL holder, overlapping licensees, and MNR, all parties are auditees.

The 2007 IFAPP requires auditing of 50% of the procedures categorized as administrative procedures associated with each of the eight guiding principles (Section 2.1.4). The 50% selected by KBM were identified in the audit plan as "not audited". Furthermore, the IFAPP considers Principle 1 and the Human Resources component of Principle 5 to be fully audited if the SFL has received certification to a recognized sustainable forest management (SFM) standard. Atikokan Forest Products Ltd. (AFP) received certification to the Sustainable Forestry Initiative 2005-09 Standard (SFIS) in June, 2007. Elements of Principle 1 and Principle 5 were still audited since they relate to high priority aspects identified in the audit plan.

A previous IFA was conducted for the Forest in 2002 for the 1997-02 term. Two recommendations arose from that audit and the actions to address the recommendations were examined during the course of this audit.
The audit process for the Forest consisted of six components:

1) Audit Plan[4]: KBM Forestry Consultants Inc. (KBM) prepared an audit plan that described the schedule of audit activities, audit team members and participants, and auditing methods. The audit plan was submitted to MNR, AFP, the Forestry Futures Committee (FFC), and the Local Citizens Committee (LCC).

2) Public Survey: KBM prepared a one-page public survey that was distributed to all organizations and to all individuals on the FMP mailing list provided by MNR. In addition, the public notice was posted and available for download from KBM's web site (www.kbm.on.ca). The purpose of the survey was to solicit public input

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[1] MNR. 2007. Independent Forest Audit Process and Protocol. Queen's Printer for Ontario. 27 pp. + Appendices.
[2] MNR. 1996. Forest Management Planning Manual for Ontario's Crown Forests. Toronto. Queen's Printer for Ontario. 452 pp. MNR. 2004. Forest Management Planning Manual for Ontario's Crown Forests. Toronto. Queen's Printer for Ontario. 440 pp.
[3] Crown Forest Sustainability Act, 1994, S.O. 1994 c. 25.
[4] KBM Forestry Consultants Inc. 2007. Sapawe Forest Independent Forest Audit Plan. 16 pp.+ Appendices.

and to provide respondents with an opportunity to identify and discuss any site-specific concerns on the Forest. A copy of the survey is located in Appendix F. Notices were placed in four newspapers (Thunder Bay Chronicle Journal, Wawatay News, Atikokan Progress, and Ignace Driftwood) soliciting public input on forest management activities on the Forest for the period under audit. A notice was also placed on Shaw Cable TV Channel 10 in Atikokan. A copy of the public notification is found in Appendix G. There were five responses to the survey process, a summary of which is presented in Appendix E.

3) Field Site Selection: KBM committed to a minimum sampling intensity of 10% of key field activities and operations conducted on the Forest, depending upon the type of activity, as per the IFAPP. A stratified random sample of sites was chosen by the audit team to ensure that selected sites were representative of the activities conducted on the Forest during the audit term. Table 1 presents the sampling intensity of the field visits completed on the Forest.

Table 1. Audit sampling intensity for the Sapawe Forest.

Activity	Total[1] Area/Number	Minimum Area/Number Sampled	Percent Sampled
Harvest (ha)	8,725	1,521	17
Renewal and Maintenance[2] (ha)	17,175	2,545	15
Area of Concern (AOC) Categories[3] (#)	14	6	43
Free-to-Grow (ha)	9,670	1,450	15
Road Construction (km)	95	17.8	19
Road Maintenance (km)	480[4]	56	12
Specified Procedures Review[5] (ha)	2,596	763	30

[1] Amount of activity in 2006-07 was estimated as the Annual Report was not yet due.
[2] Includes natural regeneration.
[3] AOC categories refer to the different types of AOCs present on the Forest. Examples included riparian areas, cool water fisheries, moose aquatic feeding areas and osprey nests.
[4] Approximate planned five year total.
[5] Specified Procedures Review involved the verification of a sample of maps, records, and fieldwork associated with Forest Renewal Trust Account expenditures for 2005-06.

4) Pre-audit Document Review: Prior to the site visit, the audit team reviewed documents provided by AFP and MNR including: the Sapawe Forest 2000-05 and 2005-10 FMPs, the 1995-00 Report of Past Forest Operations (RPFO), 2002-03 to 2006-07 Annual Work Schedules (AWSs), the 2002-03 to 2005-06 Annual Reports (ARs), and the Comparison and Trend Analysis of Planned versus Actual Forest Operations Report (Trend Analysis Report) prepared by AFP as a requirement of the IFA. A revised version of the Trend Analysis Report (TAR) was received on September 13, 2007 and subsequently also reviewed.

5) On-Site Audit: The objectives of the field site visits were to confirm that activities were conducted according to plan, that they conformed to provincial laws, regulations, and guidelines, and that they were effective. The opening meeting was held in Sapawe on September 17, 2007. The audit team conducted interviews and field visits from September 17, 2007 to September 20, 2007, including discussions with members of the LCC, First Nations and other key stakeholders, members of the public, and staff from AFP, MNR and the overlapping licensees.

The audit team met with the LCC on the evening of September 17. The purpose of the meeting was to introduce the audit plan to the LCC and determine how its members wished to be consulted. This meeting resulted in a number of comments being provided to the audit team regarding forest management. A member of the LCC participated in a portion of the field audit, and attended both the preaudit and closing meetings.

The audit team spent two days viewing field sites by road and one day by helicopter. Most of the selected field sites were accessed by helicopter since the helicopter provided rapid access and an aerial view to verify operational compliance with plans and reports.

A closing meeting for the audit was held in Sapawe on September 21, 2007. This meeting provided a forum for the audit team to present and discuss preliminary audit results with AFP and MNR.

6) Final Report: The results of the audit are presented in conjunction with a brief description of the audit process and the forest licence area under review. An important distinction is made between recommendations and suggestions within the report. Recommendations draw attention to deficiencies in forest management that require corrective action (recommendation on licence extension excepted). In most cases, recommendations are the result of non-conformance to a law or policy, or specify a lack of effectiveness in forest management activities.

   Recommendations must be addressed in an Action Plan developed by the licensee and MNR as per Appendix E of the IFAPP. Suggestions are less serious in nature and provide advice for improving particular aspects of forest management. Auditees are not required to address suggestions in the Action Plan, although the IFAPP encourages them to do so. Best Practices are identified if highly effective or novel approaches to various aspects of forest management are observed. Similarly, applications of established management approaches which achieve remarkable success may represent Best Practices.

2.1.3 The Audit Team

The audit was conducted by an independent audit team assembled by KBM under contract with MNR. The audit team consisted of five members:

Rod Seabrook, CEA(SFM), EMS(LA), Lead Auditor; Wildlife/Ecology Auditor
David Thomson, R.P.F., Planning Auditor
Peter Higgelke, R.P.F., Harvesting Operations Auditor
Laird Van Damme, R.P.F., Silviculture Auditor
Susan Jarvis, R.P.F., Forest Modelling Auditor

Audit team members, their qualifications, and responsibilities are described in Appendix B.

2.1.4 Guiding Principles

The IFAPP identifies the components of the audit process. There are eight guiding principles within the audit protocol (Appendix C). Each principle contains a series of criteria that guide the audit team in its assessment of achievement toward a given principle. Under each criterion, a number of procedures detail the assessment of auditee compliance and effectiveness. KBM assigns each of the applicable procedures to an auditor who, in turn, examines the evidence for conformity with the procedure.

2.2 Forest Management Context

2.2.1 Location of the Forest

The Sapawe Forest is licensed to AFP under SFL No. 542441. The Forest is located in the Northwest Region of MNR (Figure 1), within the Fort Frances District and is administered from MNR's Atikokan Area Office.

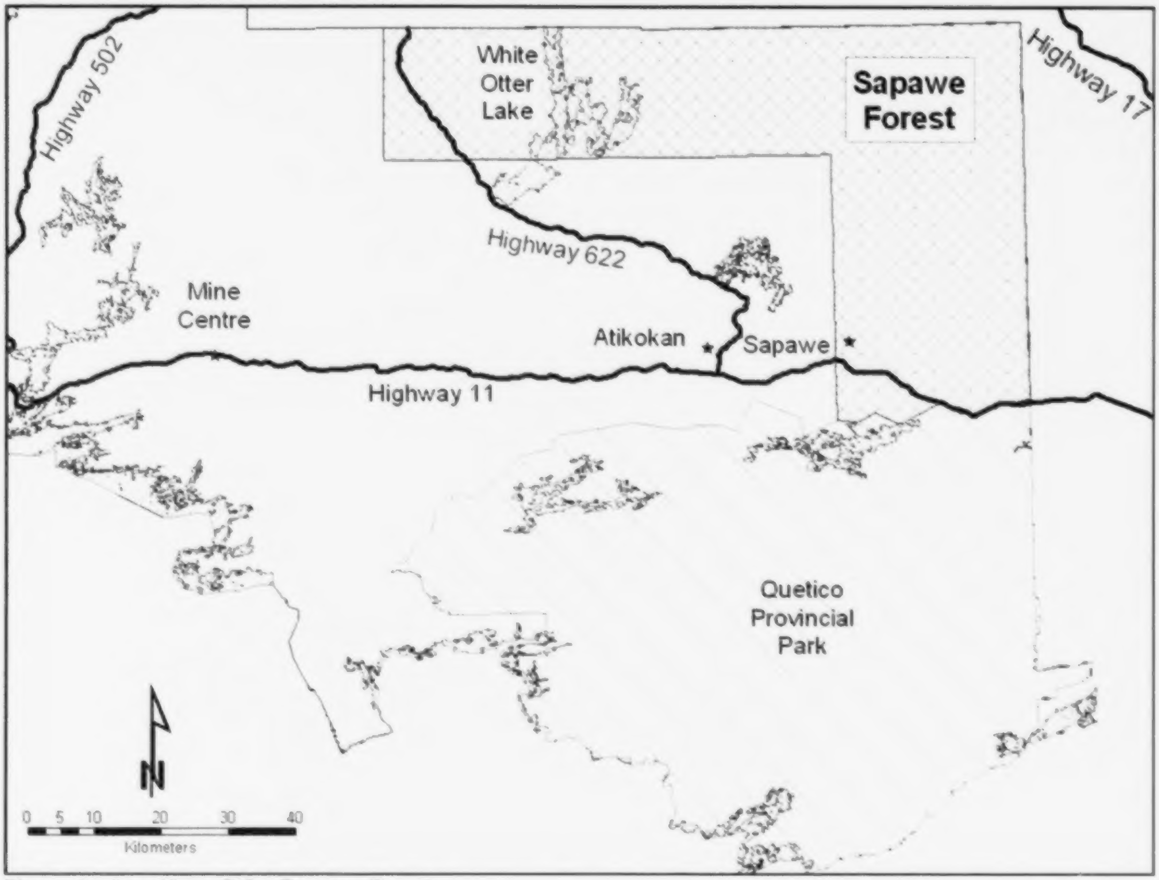

Figure 1. Location of the Sapawe Forest.

2.2.2 Description of the Forest

The Sapawe Forest occupies a total of 3,015 km^2, approximately 22% (664 km^2) of which is water. Of the total land area, 99.4% is Crown land. The Forest is bounded on the south by Quetico Provincial Park, Ontario's second largest wilderness class park.

Approximately 85% of the Sapawe Forest lies within the Quetico section of the Great Lakes-St. Lawrence forest region. The remainder of the unit, the north-eastern portion, is in the Upper English River section of the Boreal forest region. Despite this, the broad character of the Forest is typical of the Boreal forest. Transitional elements of the Great Lakes-St. Lawrence forest are expressed by the presence of Great Lakes-St. Lawrence conifer species, namely, white pine and red pine.

According to the 2005-10 FMP, the Sapawe Forest has a total Crown Managed Productive Forest area of approximately 200,000 ha. The working group summary of the Crown Managed Productive Forest shows that the principal working groups are jack pine (30%), black spruce (26%), poplar (22%) and white birch (10%). White pine and red pine working groups account for 3%.

A number of forest companies receive timber from the Forest. AFP, a Buchanan Group company, operates a sawmill at Sapawe. This mill utilizes conifer timber and is the most significant operation on the Forest. Chips produced as a by-product of the sawmill operation are used in the AbitibiBowater pulp mill in Fort Frances in exchange for roundwood from the Crossroute Forest. Sawdust produced as a by-product of the sawmill operation is used in the particleboard plant owned by Fibratech Manufacturing Inc. (formerly Proboard Ltd.) in Atikokan.

Manitou Lumber has an annual commitment from the Sapawe Forest and the Crossroute Forest for a total of 10,000 m^3 of white birch. However, for the duration of the 2000-05 FMP, the company had not utilized white birch.

2.2.3 Forest Management Issues

The IFAPP requires a review of high priority aspects (HPAs) of the auditees' systems or activities. The auditor examines these aspects in detail during the review of documents and the site visit. HPAs can include significant management challenges that are inherent to the unit (e.g. extensive areas of sensitive soils), or can be specific issues that have arisen during forest management planning or plan implementation (e.g. major conflicts with other forest users over proposed forestry operations).

Following discussions with AFP and MNR Atikokan staff, six HPAs were identified:

1. Slash management may be of a concern with different approaches now being tested.
2. Compliance remains a dominant theme with training of all operators on the Forest ongoing.
3. AFP did not contribute to the Renewal Trust Fund Account for the Sapawe Forest for a period of time during the audit term. Reductions to the herbicide program, as well as changes to slash management, were cited as outcomes of funding shortages.
4. Poplar has been under-utilized for a period of time. Poplar harvesting started again in January 2007, associated with a wood exchange agreement with Weyerhaeuser Dryden.
5. Access has been an issue on the Sapawe Forest where remote tourism interests desire access restrictions while local recreational users of the Forest want road access to be maintained after forestry operations are finished in an area.
6. The previous IFA recommended inspection of naturally abandoned roads. The work undertaken to address this recommendation was included in this audit.

The audit team examined the HPAs during the conduct of the audit and the results are discussed under the appropriate headings within Section 3.0 of the audit report.

3.0 Summary of Audit Findings

3.1 Commitment

The 2007 IFAPP considers Principle 1 met if the auditee is certified to a recognized sustainable forest management standard. AFP became certified to the Sustainable Forestry Initiative Standard (SFIS) in 2007. SFIS requires that organizations certified to the Standard have a written policy to implement and achieve nine principles: sustainable forestry, responsible practices, reforestation and productive capacity, forest health and productivity, long-term forest and soil productivity, protection of water resources, protection of special sites and biological diversity, legal compliance, and continual improvement. However, one of the HPAs was associated with compliance to requirements by operations on the Forest. Compliance is considered an aspect of organizational commitment, and is discussed in Section 3.6.1 of this report.

3.2 Public Participation

3.2.1 Local Citizens Committee

As a requirement of forest management planning, an LCC must be established to assist the plan author and planning team in preparation of the FMP and provide the MNR District Manager with advice when discretionary decisions are required.

The Atikokan LCC was formed prior to current requirements for LCCs in forest management planning in Ontario. It was active during the implementation of the 2000-05 FMP and during the development and implementation (as applicable to the audit period) of the 2005-10 FMP.

Based on document review, interviews and a meeting with the Atikokan LCC, it is the audit team's opinion that the LCC met the purposes outlined in the FMPM. LCC meetings are open with good discussions and expression of individual views. Members want to be there and are prepared to ask tough questions based on a genuine interest. Members interviewed felt that MNR provided good support with the District Manager attending most meetings.

The FMPM requires LCCs to effectively represent a balance of interests. The Atikokan LCC has accomplished this through a unique approach to public representation. In general, the Atikokan LCC and the District Manager choose members by selecting the individual rather than a representative of a stakeholder or interest group. The Terms of Reference (TOR) state that specific interest group representation is discouraged. During the audit period the TOR listed member qualification criteria as: no significant commercial interests in the management of natural resources, an ability and willingness to effectively communicate with a wide cross-section of the community and a genuine interest in all aspects of integrated resource management. MNR monitored the composition of the LCC through the use of an LCC profile exercise. Any deficiencies in the knowledge and experience base of members, and the communication network of the Committee were identified, with the objective of recruiting replacement members with the needed skill sets and/or communication access to the community sectors to address the deficiencies.

With the introduction of the 2004 FMPM, MNR is moving LCC membership towards stakeholder representation. According to MNR, positions were offered to interest groups such as tourism operators, that were previously absent on the Atikokan LCC.

During the planning process for the 2005-10 FMP the LCC and the planning team did not hold joint meetings, but an LCC member served on the planning team and planning team members attended LCC meetings. The LCC was active in monitoring the performance of plan implementation through the categorization of amendments, the inspection of AWS submissions and through regular review of compliance reports.

3.2.2 FMP Standard Public Consultation Process

The 1996 FMPM describes the specific requirements of public participation during the preparation of FMPs. A review of consultation and communication records for the 2005-10 FMP planning process indicated two minor exceptions to the FMPM requirements:

- The public notice for the Draft Plan Review did not contain a statement regarding the opportunity to make a request for an individual environmental assessment. Previous notices did contain this statement.
- The public notice and the direct written notice for Plan Inspection provided inconsistent dates for the 30-day inspection period.

Suggestion 1: MNR should ensure that public consultation notices meet FMPM requirements.

3.2.3 Native Peoples Consultation

The 1996 FMPM requires opportunity for Native (Aboriginal under the 2004 FMPM) input and involvement in the forest management planning process. Native communities have the option of participating in the regular public consultation process or choosing the additional consultation referred to as the Forest Management Native Consultation Program (FMNCP). Through this process, members of identified Indian Reserves, Band Councils, Treaty Organizations, or Tribal Councils are contacted by MNR regarding forest management planning in their area of interest. Public notices are posted in the Aboriginal media and in the Native language where required.

At the commencement of the 2005-10 FMP planning process, only the Seine River First Nation and Lac des Mille Lacs First Nation communities were considered within or adjacent to the Sapawe Forest. Both communities were contacted, but only the Lac des Mille Lacs First Nation responded and participated in the planning process. It should be noted that First Nations participation in the water management planning process was also being requested at this time. Seine River First Nation has an interest in fisheries issues and chose to participate in the water management process.

In May of 2003, Wabigoon Lake Ojibway Nation (WLON) submitted a letter identifying an interest in participating in the planning process for the Sapawe forest. MNR records indicated that WLON participation was discussed at a subsequent meeting between WLON and Dryden MNR staff on September 10, 2003. WLON expressed an interest in: confirming traditional interests in the Forest, exploring economic opportunity (white pine harvesting) and in having a consultant from Thunder Bay attend information centres to represent WLON interests. During interviews, MNR reported that discussions between Atikokan staff and WLON also occurred, a record of these discussions was not available to the audit team.

Suggestion 2: MNR should consider retaining records of all meetings related to Aboriginal Peoples consultation.

3.2.4 Annual Work Schedule Public Inspection

Mandated requirements for public inspection of AWSs, aerial herbicide programs, insect pest management programs and prescribed burns are described in the FMPMs. A review of AWS public inspection notices revealed that notices were made in a accordance with FMPM requirements. Public notices were published in the *Atikokan Progress* and *Ignace Driftwood* at least 15 days in advance of the forest operations approved in the AWS.

3.3 Forest Management Planning

3.3.1 Planning Team Activities

The planning team for the 2005-10 Sapawe Forest FMP was established and approved by the District Manager, as required by the FMPM, and the composition of the team was appropriate. A member of the LCC was an active and contributing member of the planning team. The planning team was chaired by a Registered Professional Forester. Regular reports of FMP progress were made to the LCC by the Chair of the planning team. Planning team members attended all information centres.

TOR were developed and approved in a timely fashion and the roles and responsibilities of the planning team were clearly defined. The planning team established timelines for activities and events in the planning process according to the requirements of the 1996 FMPM. The format and schedule for public consultation was outlined in the TOR and generally followed through the planning process. Public correspondence during plan development was recorded and responses to requests for information and to queries were appropriate and timely, including meetings and presentations when necessary.

Planning team members interviewed generally felt that adequate resources were available, but some felt there was minimal support for AFP staff on the planning team. This problem has been resolved through AFP's new approach to staff resources for planning being used for the 2010 FMP.

3.3.2 Resource Stewardship Agreements

During the planning process for the 2005-10 FMP, AFP contacted ten resource-based tourism operators (RBTOs) with an invitation to enter into Resource Stewardship Agreement (RSA) negotiations. Six RBTOs contacted expressed interest in pursuing RSAs and met with AFP. A scoping meeting was held in 2003 with 20 attendees. Although no RSAs were signed prior to plan implementation, AOC prescriptions were developed as needed and included in the plan. Six RSAs were subsequently signed.

The 2005-10 FMP included the required statement that, *the terms of any RSA do not bind or limit the Minister's right to make land use decisions for Crown land in Ontario.* The FMP also included the required statement confirming the commitment to maintain the viability of the tourism industry by protecting tourism values through the application of the Management Guidelines for Forestry and Resource-Based Tourism[5] and the use of RSAs as one method of protecting and sustaining these values.

Interviews with AFP staff and four RBTOs identified a general satisfaction with the RSA process and the protection of tourism values on the Sapawe Forest.

3.3.3 Sources of Direction

Forest management planning relies upon numerous sources of direction, including provincial legislation, MNR policy and guidelines, legal commitments, regional strategic direction, and local land use and resource management plans. MNR is responsible for identifying the relevant sources of direction to ensure forest management planning teams are aware of, and have access to these items.

All of the relevant sources of direction were used in the preparation of the 2005-10 FMP. Planning team members indicated in interviews that MNR Region ensured planning teams received relevant sources of direction and new information as it became available.

3.3.4 Introduction

The Statement of Environmental Values (SEV) briefing note, arising from requirements under the Environmental Bill of Rights, was contained in the introduction to the 2005-10 FMP. MNR has developed seven questions to assist planning teams in addressing the requirement for an SEV briefing note within the FMP (e.g. *How does the proposal seek to complement or further the achievement of the Ministry's goals and objectives?)*. The briefing note cited direction provided in MNR's *Beyond 2000* document and stated that the FMP was intended to reflect those directions and *to further the objectives of managing our resources to achieve ecosystem sustainability*. A backgrounder to the Forest was given, followed by a discussion of how the plan addressed the seven questions.

3.3.5 Management Unit Description

The 2005-10 FMP provided a comprehensive description of the location and geographic context of the Sapawe Forest within the surrounding landscape, incorporating surficial geology, topography, soils, site conditions, climate, and watershed information. Slight differences in total land and water areas between this and previous plans due to the introduction of a geographic information system (GIS) based inventory system were explained. Information from previous plans was included to illustrate trends over time. A summary of current management arrangements including wood supply to industry, road access and land usage was also provided.

The plan contained an in-depth assessment of management implications across the Forest based on surficial geology, soils, and site conditions. The assessment separated the Sapawe Forest into four working areas: the northwest portion; the north central portion; the portion of the unit east of the Seine River; and remaining area south of the Seine Bay-Crooked Pine lakes area. Three distinct soil conditions exist across these areas: shallow soils over bedrock in the northwest, deep rich deposits in the southeast, and sandier deposits in the northern and north-easterly parts of the Forest. These physiographic aspects of the Forest are used in forest planning. For example, more seeding is used in the northwest portion of the Forest associated with shallower sites compared to the rest of the Forest.

Broad soil groups and landforms were mapped in the Northern Ontario Engineering and Geological Terrain Survey (NOEGTS) at a scale of 1:100,000 in the 1970s. Although these maps combined with other data may have been the source material for the FMPs, these data are now available in digital format and could be used to further refine the forest description in the next FMP.

Suggestion 3: AFP should consider updating the forest description with new data or data formats (e.g. digital NOEGTS) in the next FMP.

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[5] Forest Management Branch. 2001. Management Guidelines for Forestry and Resource-based Tourism. Ont. Min. Nat. Res., Queen's Printer for Ontario, Toronto, ON. 24 pp.

The historic forest description catalogued the major disturbance events from fire, blowdown, insects and disease that have occurred within the Sapawe Forest. The logging history and subsequent development of the forest industry were very thoroughly reported.

A complete list of references used to update the current forest resource inventory (FRI) data was outlined as well as an excellent account of the updating process (e.g. aerial photography, OLL[6] withdrawals, etc.). The FRI was developed in 1998 based on 1995 aerial photography. The FRI was updated for both the 2000-05 and 2005-10 plans. A detailed breakdown of the FRI classification including depletions, accruals, forecasts and a summary of trends was given. A historic age class comparison and a working group comparison were also provided, with detailed summaries of each. The working group comparison showed the successful maintenance of a stable forest condition between FRI updates through effective silvicultural treatments. MNR provided the base feature data and FRI for non-licensed Crown and non-Crown areas.

The area available for timber production gave a careful accounting of the changes in forest unit proportions (e.g. the division of red pine into plantations and natural areas.) Most of the discrepancies in forest unit area between this and previous plans arose from changes to forest unit definitions between planning periods.

Values information was updated for planning purposes and flights were conducted in areas associated with proposed allocations and road corridors to confirm the presence of known values and to check for new values. The audit team confirmed the accuracy of information on a sample of values against the information contained on the values maps. The FMP contained a list of species at risk from forest management that were either known or thought to be found on the Forest. The list was generally consistent with information contained on MNR's Natural Heritage Information Centre (NHIC) listing for this area. The NHIC lists the grey fox, a threatened species, as being found within Ecodistrict 3W2, however the FMP did not. According to the Area Biologist there are no records of sightings on the Sapawe Forest. The small-flowered Lipocarpha was listed on NHIC as an endangered species within Ecodistrict 4W1, but not listed within the FMP, although threats to the species from forest management activities are likely very slight given its location on shorelines. The Area Biologist stated that the District does consider the information maintained by the NHIC during planning and that much of the information is provided by MNR Districts.

The assessment of the social and economic impacts of harvesting at the district, regional and provincial levels was methodical and comprehensive. An analysis was conducted to show differences in the socio-economic impacts between management options and the reasoning for the choice of the selected alternative was given.

MNR provided a complete socio-economic profile for the Sapawe Forest based on 2001 Census data and the 2005-10 FMP contained a detailed summary of the profile, including a discussion of the value being added to communities by forest operations.

3.3.6 Objectives and Strategies/Management Alternatives

Objectives were included in the 2005-10 FMP to address forest diversity, social and economic matters, provision of forest cover, and silviculture as required by the CFSA and FMPM. The objectives adhere to principles expressed in provincial as well as local direction issued by MNR. Strategies relevant to the management unit were included to support objective achievement.

Most objectives had associated targets by which objective achievement is measured. Certain targets were qualitative, but where possible, quantitative targets were set. Quantitative targets were a combination of non-spatial targets assessed with Strategic Forest Management Model (SFMM) projections, and others were quantitative using other computer models (i.e. NDPEG Tool, Ontario Marten Analyst 2).

A natural benchmark scenario was developed for the Sapawe Forest to predict how the forest would develop through time in the absence of human intervention (i.e. no fire suppression, no harvesting or renewal activities).

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[6] MNR. 1999. Ontario's Living Legacy Land Use Strategy. Ont. Min. Nat. Res. Queen's Printer for Ontario. 34 pp. + Appendix.

This natural benchmark scenario was used to define the acceptable bounds for certain objective targets, for example, "within the limits of the bounds of natural variation" based on the 75-year fire cycle natural benchmark. The acceptable "limit" was not defined with the target. Limits were discussed later in FMP Section 2.3.4 (e.g. 20% of natural benchmark acceptable target for wildlife habitat, acceptable range for old growth forest area included in Table FMP-13) however no target was described in Section 2.3.3.2 of the plan, nor rationale provided why the specific variance was chosen by the Planning Team. The 2004 FMPM requires that all objective indicators have clearly defined desired levels and the rationale for the desired levels must be documented. Therefore the 2010 Sapawe Forest FMP will have to address this requirement.

A comprehensive range of management alternatives was considered in the 2005-10 FMP, including the three mandatory management alternatives required by the 1996 FMPM, to determine the Sapawe Forest's theoretical timber production potential. One additional alternative, later selected for implementation, was investigated by the planning team that provided a more balanced consideration for all objectives.

The above management alternatives were compared to the Natural Benchmark Scenario to assess forest sustainability and determine estimated bounds of natural variation. A reasonable and comprehensive set of objectives was determined for the FMP, which varied for each management alternative and was logically incorporated into the SFMM for those objectives that could be modelled non-spatially.

The range of management alternatives identified in the plan addressed FMPM requirements and satisfied the planning team and LCC. The entire suite of management alternatives were presented to the LCC for review and comment. The LCC confirmed that it was involved in the evaluation of management alternatives and supported the overall strategic direction for the Sapawe Forest 2005-10 FMP.

The FMP management alternatives were analyzed through the use of SFMM, with results documented in the plan for all alternatives. Electronic SFMM files were provided to the audit team for inspection and verification. The FMP provided good background documentation for most SFMM modelling inputs including development information included in the FMP main text and Analysis Package appendix. The Analysis Package and text documentation for the 2005-10 FMP was comprehensive and will provide a good basis upon which to build during the development of the 2010 FMP Management Strategy.

The SFMM modelling for the 2005-10 FMP was generally well structured. Some instances in the SFMM modelling were noted where improvements are suggested for the 2010 FMP in order to better represent forest dynamics, operational practices or to project more consistent objective achievement through the long-term. These instances and the associated suggestion are further explained in the following paragraphs.

Natural forest succession is included in the SFMM model to project changes in forest species composition and age class structure resulting from the ageing of the Forest. Changes in forest composition are a result of normal forest dynamic processes where volume change is gradual as the forest transitions from one forest type to another or one age class structure to another structure. Natural forest succession assumptions in the strategic modelling are applied to the entire modelled land base which includes all areas reserved from forest management activities as well as those managed Crown forest areas available for timber production. The majority of area on the Sapawe Forest projected to naturally succeed through time occurs in reserve forest classes: parks and conservation reserves. This higher level of natural succession in reserve areas is expected as no timber harvesting activities can be scheduled to occur to offset timber losses that result from natural ageing of the forest.

Ideally, after consideration for the achievement of all management objectives including old growth forest and wildlife habitat, older forested stands available for timber production would be scheduled for harvest before significant losses of timber result from deterioration of the overmature stands. Maximized utilization of timber prior to stand break-up may result in enhanced social and economic opportunities from the Forest. However, the 2005-10 Sapawe FMP selected management alternative did project significant losses from ageing of the Forest for the next 30 years. The amount of forest available for timber production that is projected to annually succeed from 2015-35 is approximately 540 ha per year with losses decreasing to under 50 ha per year thereafter. This loss to natural succession is significant in the short-term due to management objectives and the current age class structure of the Forest, most noticeably in the BwDom and ConMx forest units.

Volume losses through natural succession are projected in the available land base of 40,000 m3 per year from 2015-35 if averaged between all tree species. The natural succession inputs to the modelling for the 2005-10 FMP included some dramatic volume shifts that can influence the results for projected forest management activities through time. These shifts included artificial jumps or collapses in volume when stand volumes immediately before and after succession points were compared. Volume losses through forest ageing occurred when certain natural succession assumptions transitioned area to future hardwood forest units, and volume gains were projected when other succession rules transitioned area to the ConMx and SpUpl forest units. The Planning Team fine-tuned succession rules for the management unit based on local expertise as well as the background information and relative ages of succession by forest unit. Ages were kept relative and no additional editing was done based on matching volumes. It is suggested that the planning team for the 2010 FMP review and revise natural forest succession rules with consideration for pre- and post-succession volumes in order to minimize volume losses or gains as a result of natural succession.

No renewal limits used were included in the strategic modelling to reflect ecological limitations to renewal treatments, or to reflect operational considerations that resulted from management decisions related to strategic renewal strategies. Strategic renewal limits based on biological site limitations to forest renewal are recommended to limit the SFMM model from solving with unrealistic renewal projections. These ecologically-based constraints to renewal treatments may also allow fewer constraints to be necessary in other areas of the modelling. The audit team suggests that minimum and/or maximum limits on renewal should reflect ecological site limitations in the base model for the 2010 FMP, and can be expanded to include additional management decisions in the selected alternative if required (called Proposed Management Strategy in 2010 FMP).

Projected forest unit area through time was analyzed and included in the discussion of objective achievement and forest sustainability. No constraints were added in the model to force results in a specific range or to moderate the quantity of change in forest unit areas from 2005 to the end of the modelled planning horizon. Without added modelling constraints, the projected forest unit area for all management alternatives, including the selected management alternative, varied through time. This resulted in a partial achievement of the management objective related to forest composition. The selected alternative projected the most satisfactory results for forest unit area, though underachievement of area for some forest units was still evident when compared to targets (i.e. PoDom, PjDom and ConMx). The audit team suggests that constraints for forest unit stability be utilized in the modelling for the 2010 FMP to mitigate significant fluctuations in forest unit area.

Suggestions directed at the 2010 FMP strategic modelling are summarized in one suggestion below:

Suggestion 4: During preparation of the 2010 FMP, the planning team should:

a) Review and revise (if appropriate) natural forest succession rules for volume losses pre- and post-succession to minimize volume losses or gains as a result of succession;
b) Review and revise (if appropriate) forest renewal limits by proportion for the base model to reflect biological/ecologically based limitations. Limits should be expanded in the Proposed Management Strategy to include additional management decisions to balance the renewal program by treatment intensity if warranted; and
c) Review projected forest unit stability, wildlife habitat and old growth forest results in the Proposed Management Strategy and add constraints to enhance the achievement of desired levels (if warranted).

The FMP provided a good discussion of the assessment of forest sustainability and objective achievement for all management alternatives. Mandatory Management Alternatives 1A, 1B, 1C and PPMA-2 Run 11 (the selected management alternative (SMA)) all passed the test of forest sustainability and achieved objective targets to varying degrees. Overall PPMA-2 Run 11 (SMA) ranked highest when all objective targets were assessed through the short-term and long-term, and after consideration of socio-economic analysis and spatial analysis with projected harvest areas allocated. SFMM modelling, analysis and documentation supported sustainable forest management for the selected management alternative. The analysis of management alternatives was very accurately documented in FMP text, tables and appendices with only minor variances found. The documented available harvest area by forest unit was consistent with the outputs from the SFMM modelling and was accurately documented in the FMP text and tables.

Eligibility criteria for harvest, renewal, and tending were stated in the FMP and were consistent with lower operability ages included in the strategic modelling.

The required examination of the results and analysis of the socio-economic impact model (SEIM) was completed by the planning team and the LCCs.

SFMM is a non-spatial model and projects only the area associated with the various modelled parameters. The model does not predict whether wildlife habitat or areas of eligible timber will be found in viable spatial concentrations. Spatial characteristics of planned clearcuts are evaluated at a landscape level over the first five years of operations only, although application of Natural Disturbance Pattern Emulation Guidelines[7] (NDPEG) and planning for marten core habitat establish spatial characteristics on the forest lasting beyond five years (ten years and 60 years, respectively).

The planning team established the definition of old growth forest for the Sapawe Forest, although no specific objective targets were set in the 2005-10 FMP. The plan stated that the ages for defining old growth for each forest unit were based on *Ladit Bulletin #7*, an MNR document intended for use by planning teams. The most current version of the *Ladit Bulletin #7* was an October, 2000 version, for use by 2003 planning teams. The onset ages for old growth forest actually used in the plan, and shown in Table FMP 13, were from the March, 2000 version of the *Ladit Bulletin #7* values. Table 2 illustrates examples of the differences.

Table 2. Old Growth Ages (years) by Source.

Forest Type (working group or forest unit)	FMP-13	Ladit Bulletin #7 October 2000 Version
White pine	>120	>130
Red pine	>120	>150
Black spruce low	>100	>120
Jack pine	>70	>100
Poplar	>70	>100
Birch	>70	>110

The consequence of using lower ages for defining old growth would be an apparent increase in the amount of old growth generated by the various management alternatives and the Natural Benchmark Run (NBR). The increase in projected old growth in the NBR would proportionally increase the targets for old growth forest for each forest unit. It is not known whether using the correct *Ladit Bulletin #7* definitions would change the rankings of the management alternatives or the results relative to the NBR with respect to maintenance of old growth on the Sapawe Forest. The *Ladit Bulletin #7* guidance has now been replaced by definitions contained in the Old Growth Forest Definitions for Ontario[8], a document required to be used by the Old Growth Policy[9] during forest management planning.

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[7] MNR. 2001. Forest Management Guide for Natural Disturbance Pattern Emulation, Version 3.1. Ont. Min. Nat. Res., Queen's Printer for Ontario. 40 pp.

[8] Uhlig, P., A. Harris, G. Craig, C. Bowling, B. Chambers, B. Naylor and G. Beemer. 2001. Old growth forest definitions for Ontario. Ont. Min. Nat. Res., Queen's Printer for Ontario, Toronto, ON. 53 pp.

[9] MNR. 2003. Old Growth Policy for Ontario's Crown Forests. Queen' Printer for Ontario. 16 pp. + Appendices.

The PPMA-2 Run 11, which became the SMA, produced slightly less old growth overall than did the mandatory alternatives, and was approximately 20% of the NBR (3,500 ha vs. 17,800 ha) for old growth at Year 100, the point chosen as the desired future forest condition. The FMP analysis package stated that future plans may require the investigation of limits being applied to satisfy old growth targets. Since the FMP lacked specific old growth targets, it is unclear as to what was intended by this statement. The FMP also stated that one of the main objectives of forest management is to reduce the amount of area in older age classes, although the amount of reduction intended was not specified.

The documentation of the definition and desired levels for old growth forest must be addressed in the 2010 FMP. The 2010 FMP must clearly define criteria for old growth forest by forest unit and rationalize desired and target levels based on the desired forest and benefits for the Sapawe Forest. The audit team has not included this requirement as an audit report recommendation since this requirement is already included in the 2004 FMPM that the planning team must follow during preparation of the 2010 FMP.

For the SMA, old growth red pine and white pine showed an increase of 312 ha (17%) between 1995 and 2005 and old forest increased 2,852 ha (1.6%) over the same time frame. These trends are consistent with the intent of MNR's Old Growth Policy and consistent with 2005-10 FMP Objective 1.3.

The analysis of preferred habitat available for the 15 indicator species that applied to the Sapawe Forest demonstrated that habitat for 12 of the 15 species stayed above the minimum estimated bounds of natural variation (BNV) at the desired future forest condition year. The bounds of natural variation were estimated by the planning team to be +/-20% of the NBR during all terms. For the three species which fell below the BNV (pileated woodpecker, golden crowned kinglet, and snowshoe hare), all were only marginally below the BNV for three or four of the ten terms. While not desirable, this is not considered a serious shortfall.

The modelling presented habitat for 18 terms (180 years). Habitat for great grey owl, northern flying squirrel, boreal chickadee, golden crowned kinglet, snowshoe hare, boreal red-backed vole, and marten dipped, and for most species, remained below the BNV beyond Term 10. There is no requirement to ensure that indicators for which BNVs are set must remain above the minimum BNV during all terms modelled for the selected management alternative, though deviations and long-term trends past Term 10 were discussed in the plan. The model included some targets up to Term 10 for wildlife habitat for certain species (some preferring mature to overmature forest conditions), but nothing to force wildlife habitat achievement past 100 years.

The audit team noted some issues with the information in Table FMP-5 (Habitat for Selected Wildlife Species). Specifically, there were large, unexplained changes in habitat for some species (e.g. great grey owl, boreal chickadee), both at the Provincial and Regional levels, between the 2000-05 FMP and the 2005-10 FMP. In addition, the figures for per cent change in habitat for all species between the two plans were incorrect. MNR District staff could not explain the source of the latter error.

The approach to tracking changes in wildlife habitat has changed in the 2004 FMPM. Table FMP-8 has replaced Table FMP-5 from the 1996 FMPM. Table FMP-8 is forward looking and summarizes the area of habitat by twenty year projections for the management strategy, allowing a tabular comparison of habitat availability over time. There is no longer a requirement to compare changes in area of habitat for selected wildlife species between the current and past plans, nor are values presented beyond the management unit scale (i.e. subregional, regional, and provincial). The value of these comparisons was questionable given changes in regional habitat matrices, the difficulty in rolling up data to a provincial scale, and the changes in forest units that inevitably occur between forest management plans on any given forest.

3.3.7 Operational Planning

Fourteen categories of AOCs were developed to protect values potentially impacted by forest management operations on the Forest, including several prescriptions designed to protect tourism values. In cases where no direction was specified or recommended in an implementation manual (forest management guide) the 1996 FMPM required consideration and environmental analysis of a reasonable range of practical alternative prescriptions. In the case of the tourism prescriptions AFP met with individual tourism operators who had expressed concern regarding the impacts of proposed forestry operations proximate to their interests and mutually acceptable prescriptions were developed and agreed upon between the parties, as part of RSA discussions. The negotiated prescriptions became the selected prescriptions, and the rationale for the prescription cited the agreement between the parties. However, a rationale was not provided to explain why only a single alternative prescription was proposed in each case (i.e. why a reasonable range of practical alternative prescriptions did not exist), as required by MNR training. The 2004 FMPM allows for consideration during planning of operational prescriptions for AOCs developed from another planning exercise (e.g. RSAs), although a rationale for the prescription (not necessarily alternative prescriptions) must be given.

All other prescriptions followed specific or recommended direction, were appropriate to protect the values in question (e.g. stick nests, water quality, moose aquatic feeding areas), and were properly represented on operational maps. Most prescriptions did not permit roads within AOCs. Where roads were planned, their impacts were to be mitigated through means such as use of winter roads or decommissioning of water crossings and/or the road bed. The prescription to protect high potential cultural heritage values required a Stage 2 archaeological assessment (field examination) for all proposed roads through the AOC unless operations met criteria for minimal ground disturbance. One such area was viewed at Stop 15 where gravel fill was placed over geotextile to form the road base and avoid soil disturbance.

During the 2005-10 term, only one new primary road corridor was planned – the Caldwell Road. Additionally, the Premier Lake Road extension was discussed with its required planning having been completed in the 2000-05 FMP. One secondary road, the South Bow Lake Road, was planned for the 2005-10 period. In each of these cases, the planning requirements were met, including description and analysis of alternatives. Also a number of primary and secondary roads had planned reconstruction activities as presented in Table FMP-26.

The areas selected for harvest, renewal and tending operations in the 2005-10 FMP were consistent with the defined selection criteria. The defined selection criteria were listed in the FMP in order of importance beginning with allocations that were similar to the available harvest by forest unit and age as projected by SFMM.

AFP held meetings with several tourism operators to negotiate harvest areas in an attempt to minimize the impacts of harvesting on the tourism industry. AFP also avoided allocating additional areas around those tourism operators.

Depletion areas were subdivided into three categories – Normal, Modified and Contingency harvest – with a listing of all stands selected for normal, modified and contingency operations included in the appendices. Considerable discussion was provided in the FMP respecting concerns associated with meeting NDPEG requirements, particularly those related to forest disturbance distribution and planned clearcut size. A thorough explanation of insular and peninsular targets was provided detailing mapping requirements and field layout of harvest blocks. While the NDPEG requires a more natural frequency and disturbance size class pattern and directs that 80% or more of the planned clearcuts are smaller than 260 ha, 82% of planned clearcuts for the 2005-10 FMP met this standard. Most of the large planned clearcuts were intended to defragment groups of smaller clearcuts.

While the available harvest area was 11,350 ha over the five-year term, the total planned harvest area was 10,975 ha and the total forecast harvest area was 10,975 ha. The forecast harvest area for all forest units represented 97% of the projected available harvest from SFMM for the SMA. Areas were selected for operations with the very specific intent of matching the model outputs as closely as possible. The resulting variations were minor and were described as inevitable due to operational practicalities, socio-economic realities, and wildlife guidelines that are beyond current modelling capabilities. Achievement of NDPEG disturbance frequency and size requirements necessitated some age class substitution from the SFMM model output, a normal occurrence at this stage of planning. The plan provided a good discussion of age-class substitution considerations necessary to meet NDPEG requirements.

As can been seen in Table 3, the total allocation by forest unit was relatively consistent with the Available Harvest Area (AHA). The MxWd and PwMx forest units were under allocated; however, these forest areas represent a small portion of the total area.

Consistent with discussion in the plan, Table 4 shows a pronounced deviation from the available harvest area to the planned harvest area by age class. Only for age classes 81-100 and 141-160 do the available and planned areas approximate one another. In all other cases, the differences are substantial illustrating the degree of age-class substitution selected by the planners.

Given the spatial distribution of different forest units – age class combinations across the Sapawe Forest and the small size and shape of the Forest, it is expected that some form of substitution would be necessary to meet the mandatory standards for clearcut size and frequency established by NDPEG. Discussion in the text of the plan also expressed concern about continued attempts to meet these standards in future plans.

The contingency area identified in the 2005-10 FMP was 1,823 ha or 83% of the planned annual harvest level. The plan indicated that the area was not an allocation area in addition to the regular allocated harvest but was substitute area to accommodate unforeseeable natural circumstances and had been part of the public consultation exercise and AOC planning process. Contingency areas met the requirements of the 1996 FMPM.

Table 3. Comparison of Available and Planned Harvest Area by Forest Unit for the 2005-10 Term.

Forest Unit	Available Harvest Area (ha)	Planned Harvest Area (ha)	Difference (ha)	Planned Area as Percentage of Actual
BwDom	959	957	2	99.8%
ConMx	3245	3243	2	99.9%
HrdMx	1255	1255	0	100.0%
MxWd	595	311	284	52.3%
OC	50	50	0	100.0%
OH	0	0	0	-
PjDom	2495	2495	0	100.0%
PoDom	1355	1354	1	99.9%
PrDom	0	0	0	-
PrMx	60	60	0	100.0%
PwMx	135	56	79	41.5%
SbLow	350	350	0	100.0%
SbUpl	850	842	8	99.1%

Table 4. Comparison of Available and Planned Harvest Area by Age Class for the 2005-10 Term.

Age Class	Available Harvest Area (ha)	Planned Harvest Area (ha)	Difference (ha)	Planned Area as Percentage of Actual
21-40	0	9	-9	-
41-60	150	108	42	72.0%
61-80	1980	3719	-1739	187.8%
81-100	5575	5623	-48	100.9%
101-120	2735	1162	1573	42.5%
121-140	764	217	547	28.4%
141-160	125	123	2	98.4%
161-180	20	10	10	50.0%

Besides AFP, two other licensees exist on the Sapawe Forest; T&M Logging and Fibratech. T&M Logging is a traditional operator that is entitled to harvest timber on the Sapawe Forest as per Appendix F of the SFL. AFP and Fibratech have not yet completed negotiations for an agreement whereby Fibratech would receive sawdust and shavings from the AFP sawmill in Sapawe and Buchanan Northern Hardwoods Mill. Since neither T&M Logging nor Fibratech was to be supplied through the memorandum of agreement (MOA), Table FMP-23 includes no reference of it as an active licensee. Fibratech retains the right to wood supply from the Sapawe Forest as described in Appendix E of the SFL and to engage in a MOA to conduct timber harvesting operations as outlined in Appendix "F" of the SFL. It should be noted that in November, 2007 a receiver from the accounting firm KPMG was appointed to handle the bankruptcy of Fibratech Manufacturing.

Forecasts of revenues and expenditures were presented in Table FMP-27 and discussed in the FMP as required. Operations proposed in the FMP were reflected in the FMP tables, and appear to be adequate to meet FMP objectives. Charges, assumptions and ratios upon which the revenue and expenditure estimates were based were provided.

Silviculture Planning

The Silvicultural Ground Rules (SGRs) describe the silvicultural treatment packages that will be applied to a given forest unit in a harvest block to regenerate the area to the desired future forest unit. The previous IFA found the combination and permutations of treatments to be confusing and recommended that AFP produce a decision tree. AFP produced the requested decision tree and this was quite effective at communicating the procedures used to select an SGR in the 2005-10 FMP period. The first split in the decision tree is whether or not there is all season access, an important consideration on most forests, but here it is made explicit. This is an effective way to communicate the proposed treatments.

The SGRs in the 2005-10 FMP generally met requirements and featured several practical treatment packages that have been successfully used for a few decades. However, several silvicultural treatment packages were shown as "preferred" within an SGR and alternatives were not listed in order of preference, contrary to the 1996 FMPM requirements. However, given the use of a decision tree and that the next FMP will follow direction from the 2004 FMPM, no recommendations are made related to this minor aspect of non-conformance. Forest Operations Prescriptions (FOPs) were developed for each block consistent with the SGRs in the FMP. Some improvements in developing prescriptions are discussed in Section 3.4.3.

3.3.8 Plan Review, Approval

The 2005-10 FMP did not meet timelines described in the 1996 FMPM. The draft plan submission, scheduled for July 06, 2004 in the TOR for FMP development, was submitted to the MNR on August 12, 2004. Staffing shortages at AFP occurred for unforeseen reasons, causing the delay. Reorganization for forest management planning at the Buchanan Group of Companies has been undertaken since that time with the objective of overcoming this type of situation.

The submission date of the revised plan for MNR approval was February 11, 2005, 56 days behind the scheduled date of December 17, 2004 as outlined in the TOR. No operations proposed in the 2005-10 FMP occurred until June, 2005.

3.3.9 Plan Amendments

The 2005-10 FMP had 22 administrative amendments and three minor amendments (mainly regarding blowdown salvage) while the 2005-10 FMP had 12 amendments (two were categorized as minor for blowdown salvage and road construction) in the first two years. The frequency and nature of amendments appear reasonable (Table 5) and adds to the other sources of evidence to show that plans were prepared using due diligence, best available information and experience from prior plans.

Table 5. Amendment Category and Frequency.

Plan Term	Category of Amendment		
	Administrative	Minor	Major
2000-05	22	3	0
2005-10 (two years)	10	2	0

3.3.10 Contingency Plans

There were no contingency plans associated with the audit term.

3.3.11 Annual Work Schedules

The AWSs were complete and consistent with the planned operations as described in the respective approved FMPs and fulfilled the requirements of the respective FMPMs. AWSs were developed according to the 1996 FMPM until the 2005-06 AWS, which was the first to follow direction of the 2004 FMPM.

The Annual Compliance Schedule of Action included within the AWS was developed in tabular format, showing the harvest block identifier and resource value descriptor, among other things. Although this format provides much of the information required in the Guideline for Forest Industry Compliance Planning[10], there was no evidence of compliance priorities having been revised using a risk assessment approach. Since each forest operation presents its own compliance challenges, risk assessment is a valuable component of forest operation compliance planning.

Suggestion 5. In the development of its Annual Compliance Schedule of Action, AFP should use a risk assessment approach for setting compliance priorities for each forest operation.

FOPs were consistent with the SGRs associated with the FMPs for each period under review. The FOPS were assigned based upon the FRI designations, and field observations found that in the majority of circumstances this was appropriate. However, in several instances the site conditions were different than the mapped conditions (See Suggestion 6 and Recommendation 2).

3.4 Plan Implementation

3.4.1 Areas of Concern

Implementation of AOC prescriptions across a sample of AOC categories was viewed in the field. All prescriptions were consistent with the values being protected (e.g. slope-based reserves; moose aquatic feeding areas (MAFAs)) and were generally applied appropriately. Figure 2 depicts a slope-based AOC on Heart Lake adjacent to a harvest block (Stop 25). A portion of one slope-based reserve observed (Stop 39) should have been wider given on-the-ground conditions. AFP uses pink flagging to demark AOC boundaries and the lines were visible on boundary trees following harvesting. An eagle nest denoted on operations maps (Block 00-416) was apparently not in the location originally identified; however, ground checking by the audit team could not locate the nest in its revised location.

Prescriptions to protect tourism values in the Ann Bay area (Stops 15 and 16) were well-conceived and implemented. For example, work to protect a portage trail included modified harvesting, trail signage, road line-of-sight considerations, and rehabilitation of a section of road on either side of the trail (Figures 3-5).

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[10] MNR. 2005. Guideline for Forest Industry Compliance Planning. Ont. Min. Nat. Res., Queen's Printer for Ontario. 17pp.

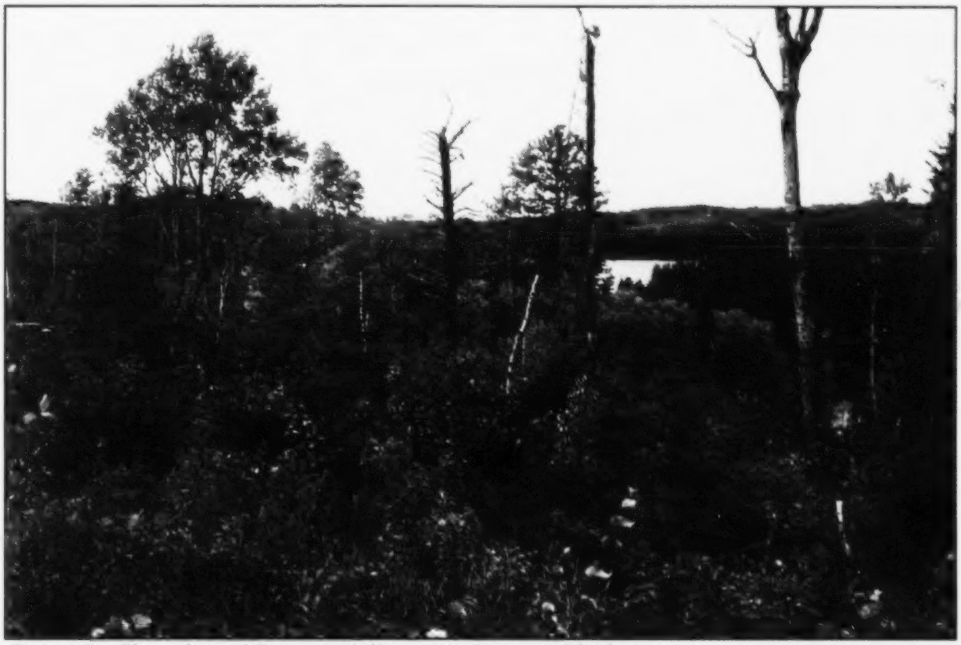

Figure 2. Slope-based Reserve Adjacent to Harvest Block.

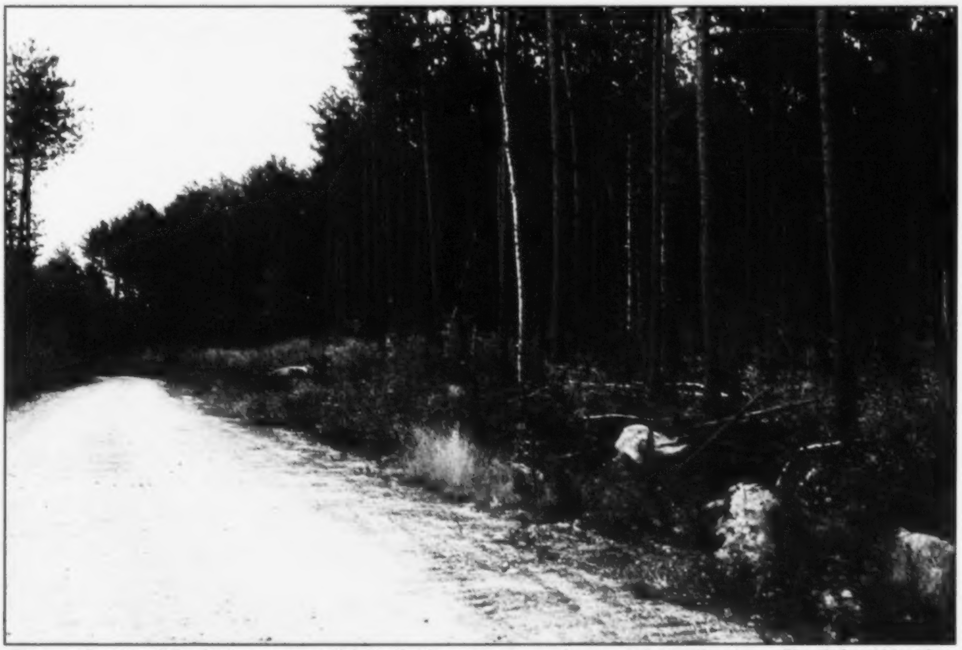

Figure 3. Modified Harvest and Road Alignment on Approach to Portage Trail (notice the curve in the road to address line-of-sight concerns from the portage trail).

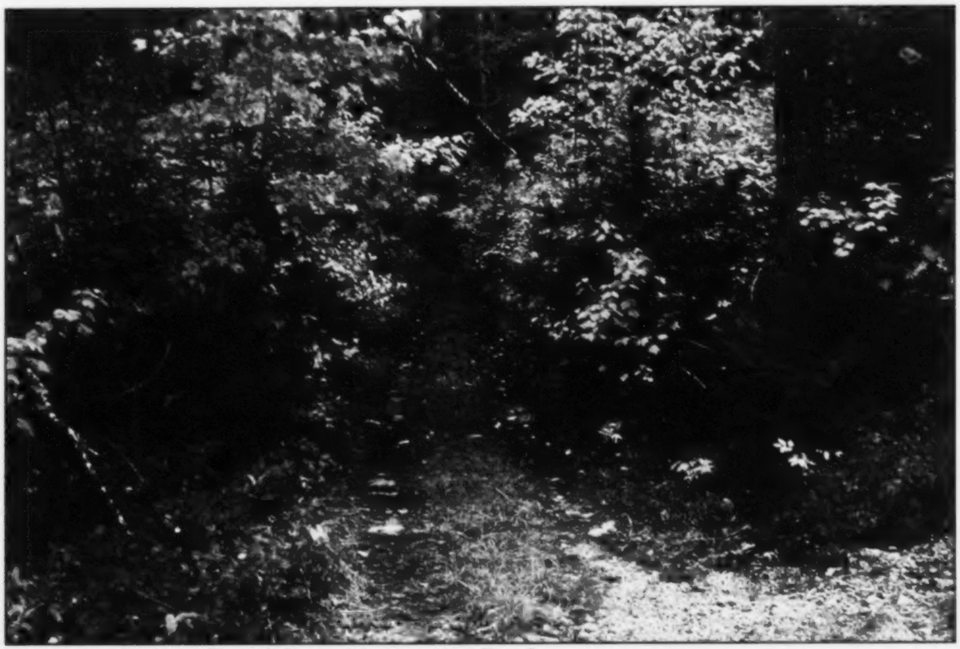

Figure 4. Portage Trail Adjacent to Logging Road.

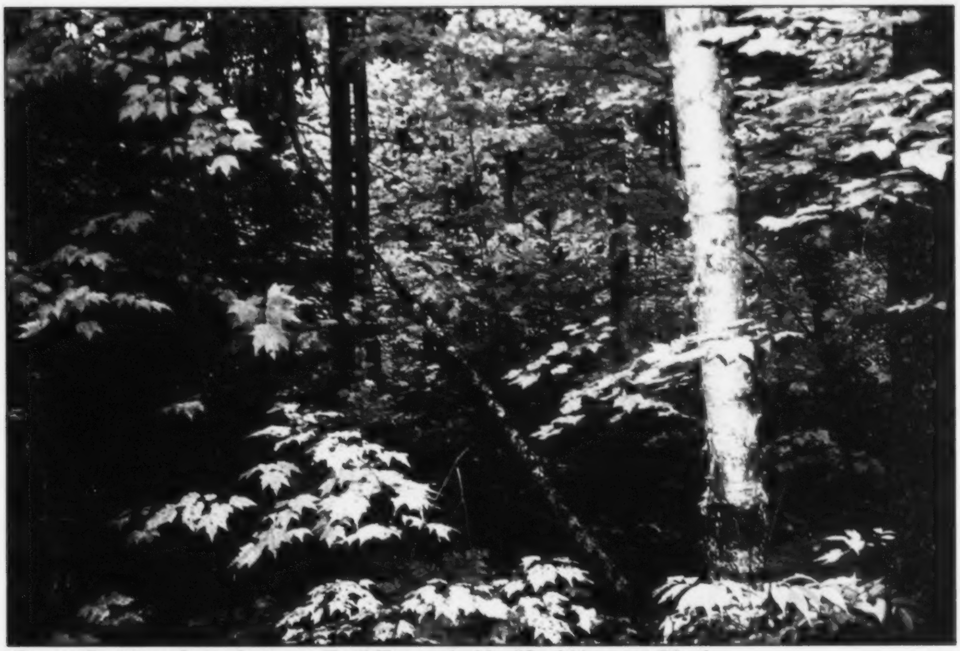

Figure 5. View from Portage Trail Towards Modified Harvest Block.

3.4.2 Harvest

Harvesting operations must be conducted in accordance with approved FMPs and AWSs which incorporate direction from the array of manuals and guidelines for forest management planning implementation. The audit team selected a sample of areas harvested during the audit period that were representative of the range of forest and operating conditions present on the Sapawe Forest and to represent a cross-section of forest units, silvicultural systems, year and season of operation, operator, and general geographic distribution. All areas chosen for inspection were approved in the FMPs and AWSs (four as revisions) and were consistent with the SGRs.

The 2000-05 FMP included full tree harvesting on Ecosites (ES) 11 and 12 in the list of exceptions, prescribing full tree harvesting rather than tree length harvesting, as recommended in the silviculture guides. As part of the field sampling, the audit team examined 53.7 ha of the 238.2 ha (22.5%) of area planned for harvest as exceptions (see discussion in Section 3.4.3).

In 2002, AFP's slash management program consisted of piling and burning slash to reduce losses to the productive forest landbase. During the term of the audit efforts were made to reduce costs associated with slash management. In 2005, the slash piling contractor did not complete much of the slash piling work. In 2006, the program was suspended by corporate direction although the one slash piling contract that had already been issued was permitted to be completed albeit with changed objectives. Rather than pile slash for burning, slash was furrowed creating rows 2.5 m wide for tree planting. No slash burning was then required reducing costs and forest fire liabilities.

The audit team saw evidence of these aspects of AFP's slash management program, i.e. burned piles, areas where no slash management was completed, and furrowed areas. AFP staff stated that untreated areas were slated for treatment, and the audit team viewed areas of recent work. The audit team was concerned with an example of furrowing of slash that resulted in ditches and no effective mineral soil exposure. Figure 6 presents examples of slash management on the Sapawe Forest.

The following recommendation is provided to address the concerns regarding slash management.

Recommendation 1: AFP must ensure that the slash management program on the Sapawe Forest is silviculturally effective.

Operations on the Sapawe Forest were conducted in a manner that exemplified good harvesting practices. Good utilization was observed, both in the cutovers and at roadside with very few felled trees seen on cutovers. High stumps, rarely seen, were usually the result of trees having grown beside boulders. Rutting instances were limited and localized. Some bypass was observed but this too was limited, and done for operational or values protection reasons. In the Ann Bay Red Pine shelterwood harvest little damage to residuals was observed both to the bark (boles) and crowns of residual trees, a result of good skid trail selection and felling and skidding practices.

Poplar utilization became a concern to both AFP and MNR since the market for poplar had collapsed. For a short period, MNR directed AFP to harvest areas with a lesser poplar component, reducing the residual post-harvest amount of poplar left on site. AFP fostered an arrangement with Weyerhaeuser in Dryden to accept poplar from the Sapawe Forest, thereby alleviating the problem of leaving the poplar component of allocated blocks unharvested.

The operation in a blowdown area near Marion Lake provided an excellent example of a salvage harvest operation in high value area near cottages. There was good cooperation between AFP and MNR to harvest, transport and renew the salvage area quickly, removing all species including poplar. The harvest block is bisected by the road to the cottages, permitting ongoing public review of operations. Roadside slash was furrowed using an excavator with the tree plant extending into the furrows.

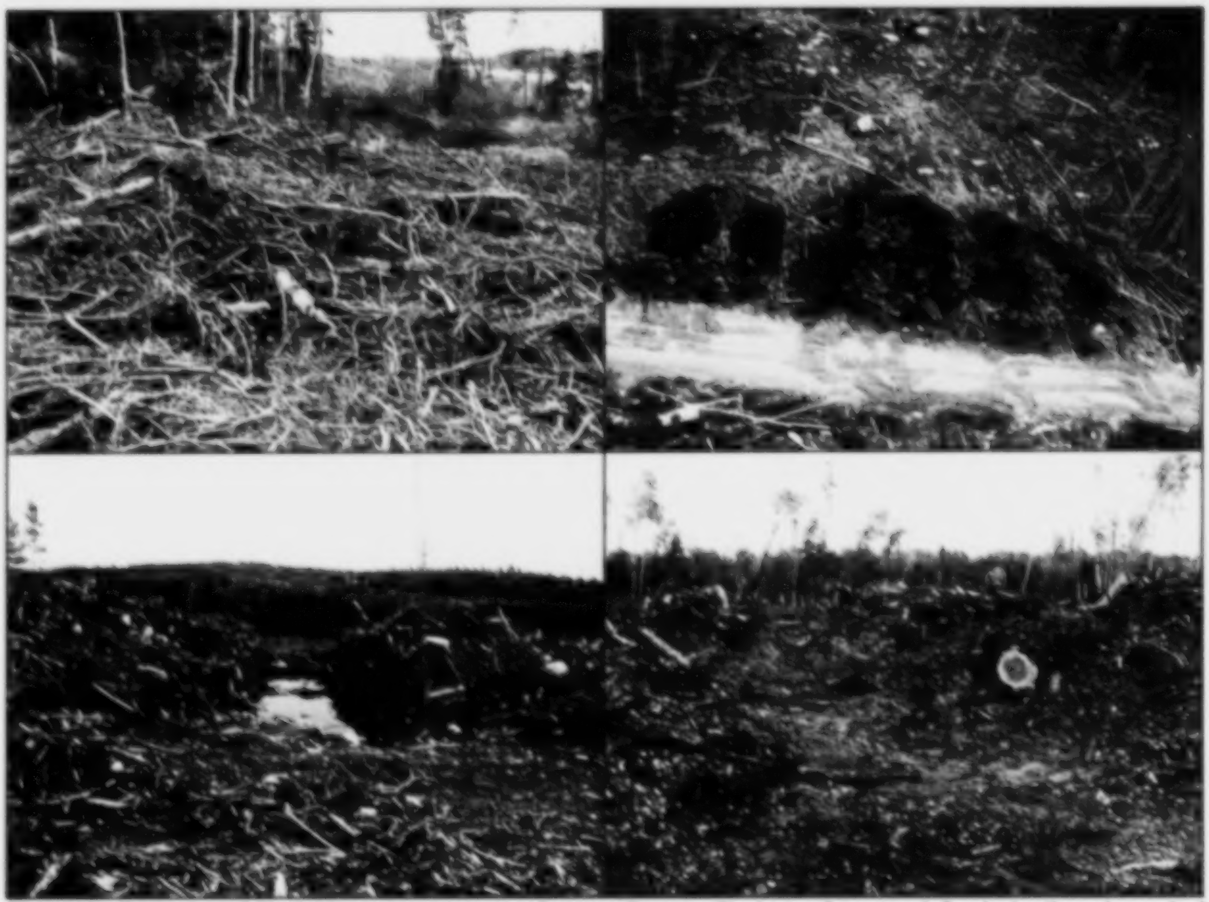

Figure 6. Examples of Slash Management on the Sapawe Forest. Clockwise from top left: slash piles where slash management was not performed; recent furrowing of slash; completed furrowing with renewal; severe furrowing in chipper debris resulting in ditching.

The 2005 Year 10 AR on harvest areas depletion by forest unit (Table AR-1) was examined to see how well the planned allocation targets in the 2000-05 FMP were achieved during the first three years of this audit period. The harvest achievement was above average for PjPur, PoPur, and ConMx and below average for other less desirable forest units from a sawlog or economic perspective.

3.4.3 Renewal

The Sapawe forest is a comparatively small management unit and has benefited from a "hands-on" approach to forest renewal. The forest renewal program has taken full advantage of the experiences from past forest management under both AFP and MNR. The local forestry experience features low turn-over (previous foresters have spent their entire careers on the Forest), mentoring of new staff and a commitment from both MNR and AFP to running an effective renewal program, with good co-operation between AFP and MNR staff.

The renewal program is meeting the silviculture targets and is expected to maintain the Forest in its current extent, leading to the desired forest condition as described in both FMPs. There is some concern that the current harvest profile combined with a drop in the area tended (see Section 3.4.4.) may cause problems in meeting forest species composition targets. This concern is described more fully in Section 3.7.1.

There is progress in identifying the historic representation of white and red pine as described in the 2000-05 FMP and moving toward restoration as described in the 2005-10 FMP. The attention being paid to white pine and red pine restoration is a significant advance compared to early periods of relative neglect. Timber management plans in the Northwest region often prescribed a "liquidation harvest" for this cover type in the 1970s. At that time, white pine blister rust, weevil, and inadequate silviculture practices resulted in poor white pine renewal success. For these reasons, and a belief that white pine in the boreal transition was outside its natural range, these forest cover types were scheduled for conversion to boreal species cover types.

Best Practice 1: MNR and AFP for the historical white pine range study and the implementation of a white pine and red pine restoration program which is an important advance that can be built upon in future plans and can be emulated in other boreal transition forests within the Region.

As a result of the above commitment, the renewal portion of the forest management program was delivered to a relatively high standard. Treatments were generally well matched to the site conditions and consistent with the FMP. On many sites, within-block variation led to changes in planting stock or other modification to further match the treatments to site conditions. Many of these variations were the allocation of black spruce to lower slope positions and white spruce or pine to the upper portions.

Some further improvements in adapting practices to localised site conditions can be made. For example, Block 00BL2 had an unmapped inclusion of ES 19, a hardwood dominated ecosite, within ES 20, a softwood dominated ecosite. The block was seeded, a practice not recommended on ES 19 although acceptable for ES 20, the dominant site type in the block. Seeding on ES 19 is listed in the 2005-10 FMP as an exception to the silviculture guides.

Block 702 had a pure poplar stand within a block dominated by jack pine and spruce stands. This stand was large enough to have been scheduled for natural regeneration but was treated with site preparation and planted to spruce consistent with the other portions of the block (Figure 7). Allowing natural regeneration in this stand combined with planting the other portions of the block would have created a future forest condition consistent with the current even-aged forest mosaic and the FMP objectives, while reducing herbicide use consistent with SFI third party certification objectives of AFP. In addition, hardwood dependent forest products users concerned over future supplies would prefer a more refined approach to favour natural regeneration of hardwoods on the appropriate sites.

Suggestion 6: AFP should refine its prescriptions on some sites to capture site variability to better match treatments to variable site conditions within blocks.

As a further example, Block 00-266 had inclusions of shallow sites that should have been harvested in a manner that left slash at the stump. Although the shallow sites were not mapped in the FRI, the adjustments to harvesting practices should have been made to match the actual conditions in the field. This finding is contrary to the FMP and the guides. Amendment #5 (2000-05 FMP) removed the exception to the silviculture guides that does not recommend full tree harvest on shallow sites (i.e. ES 11 and 12). The exception had committed AFP to participate in a regional monitoring program. The amendment allowed AFP to "opt-out" of the monitoring program in favour of following the guide for a few years, until the recent purchase of the pulp mill in Terrace Bay on the Kenogami Forest SFL brought the Buchanan Group of Companies, that included AFP, into the monitoring program.

MNR has had a monitoring program in place for ten years on the effects of full tree logging on shallow sites. MNR has yet to publish its findings or revise its guides related to harvesting on shallow sites. The practices applied by AFP on the relatively small area of shallow sites inspected by the audit team, although contrary to the guidelines, are leading to satisfactory forest regeneration and no site damage was evident.

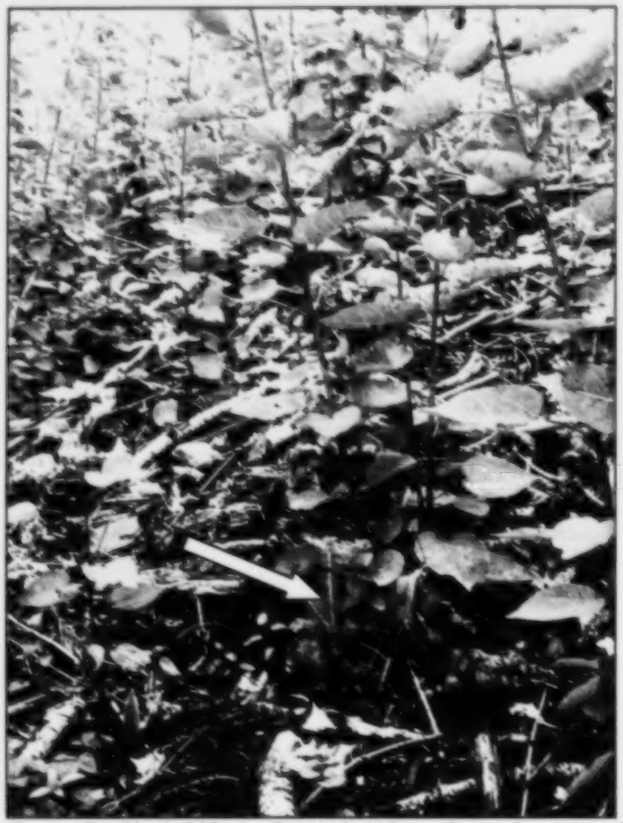

Figure 7. Block 702, An Example Where Some Portions of the Block Might be Better Suited for Natural Regeneration Rather than Planting (note the planted spruce in the foreground.)

A recent internal MNR report associated with the study was produced.[11] The report stated that Ontario is the only jurisdiction in the world that is considering full tree harvesting on shallow sites and that the data to support a decision to change the "Not Recommended" to "Conditionally Recommended" status must be conclusive.

According to the same report, very preliminary data (pre-harvest and immediately post-harvest) suggests that *...ecological stability can be maintained on ES 11/12 even when the full tree logging method is employed, as long as timber extraction rotations exceed 80 years (a conservative estimate).*

This statement is followed by an important caution, as follows:

However, a critical aspect currently lacking in this evaluation is related to the dynamic nature of post-harvest stand recovery and the potential changes in the nutritional status of these sites resulting from increased nutrient turnover and a high potential for off-site leaching. The quantification of these processes up to and including the period surrounding crown closure is necessary as they could result in additional, and in some cases excessive nutrient loss, thereby greatly extending the replacement times. In addition, Best Management Practices for these ecosites should include silvicultural options that conserve/maintain the forest nutrient pool and those practices that ensure rapid re-colonization of these ecosites.

Despite that no harm to the environment appears evident on the sites inspected by the audit team, and that the MNR's regional monitoring program has yet to deliver conclusive findings, there is a principle at stake. AFP chose to "opt-out" of a monitoring program while other SFL holders have paid for the monitoring program over a period of about three years.

The practices employed by AFP on these sites will raise issues of public confidence. The Company did not adhere to the FMP as amended and hence failed a fundamental audit test vis "did they do what they said they would do"? AFP's position is that the areas in question are less than 8 ha and hence should not be mapped out and the dominant ES 20 prescription should apply to the block. The audit team's position is that the block is an ES 20/12 complex and that the prescription should recognize the shallow site characteristic of the block and follow either the guidelines or monitoring requirement (Figure 8). AFP and MNR are developing management practices for these sites. Training will be required to implement these practices.

Recommendation 2: MNR and AFP must develop a training program that will lead to suitable prescriptions, mapping and operating practices for shallow site complexes on the Sapawe Forest.

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[11] Forest Ecosystem Science Co-operative Inc. 2005. Soil Quality Monitoring of Shallow Ecosites in Northwestern Ontario: A comparison of full tree and tree length logging - a nutrient budget approach. Prepared by D.M. Morris, D.R. Duckert, and B.A. Barker (CNFER). Internal Report. March 30, 2005.

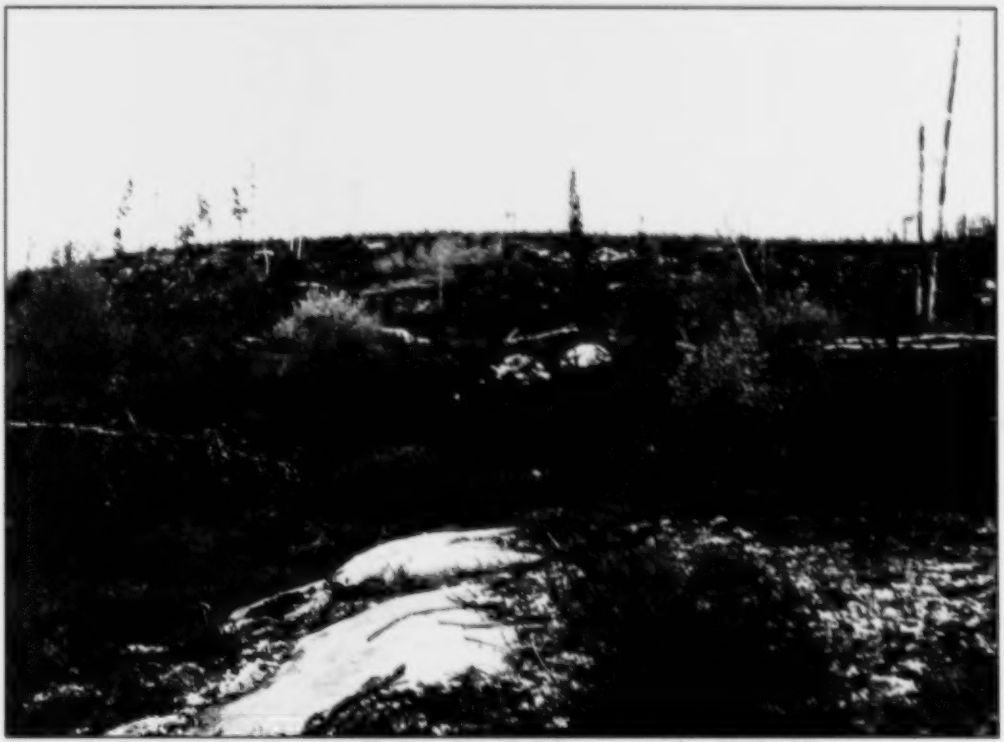

Figure 8. Block 00-266 Showing Shallow Sites Full Tree Logged, a Method Not Recommended by the Guidelines.

3.4.4 Tending and Protection

Vegetation competition control measures are necessary to ensure conifer renewal on many sites. The majority of area is tended by aerial or ground applied herbicides. A small portion of blocks were tended using brush saws. Most tending operations were properly prescribed, controlled, recorded and achieved the desired results. There were several instances where tending operations with aerial and ground applications were not as effective as desired (e.g. the ground spray block near Sanford, and shelterwood harvest on the hill overlooking Ann Bay (Block 415), and aerial treated Block 225 near Pekagoning Lake) (Figure 9). Some of the blocks were sprayed late season and with relatively low rates. Although the lower rates use less herbicide, having to apply twice negates that advantage.

The last two years showed a decline in tending levels (Figure 10). If this trend continues, the forest cover objectives in the FMP may not be met.

Recommendation 3: AFP and MNR must review the tending program and herbicide application methods to improve the program effectiveness and to ensure it is meeting FMP objectives.

3.4.5 Renewal Support

Renewal support consists mainly of seed collection for seedling production. Jack pine and white pine targets were met but some shortages in white spruce and red pine seed were reported. These shortages did not compromise the renewal program. There are no tree breeding support sites such as family tests or seed orchards located on the Forest.

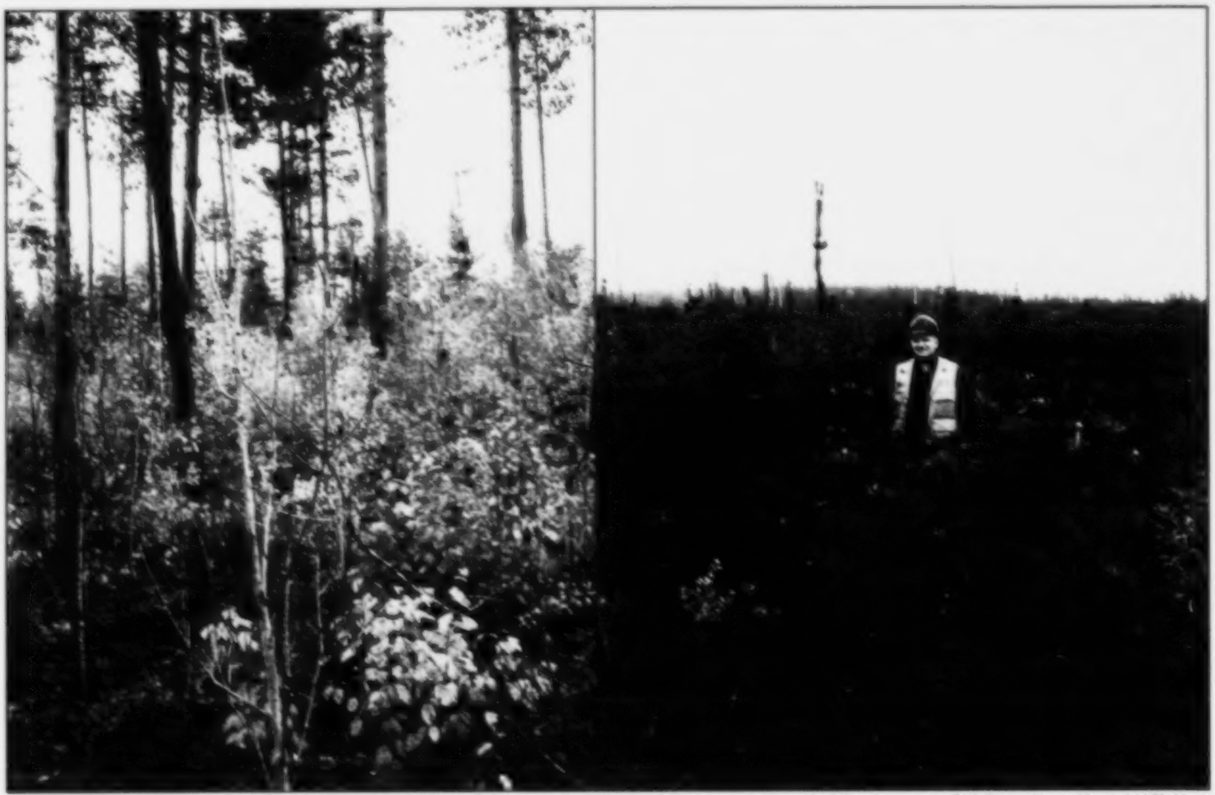

Figure 9. An Example of Tending that May Require Additional Treatments (left); Successful Tending that Will Not Require Future Treatments (right).

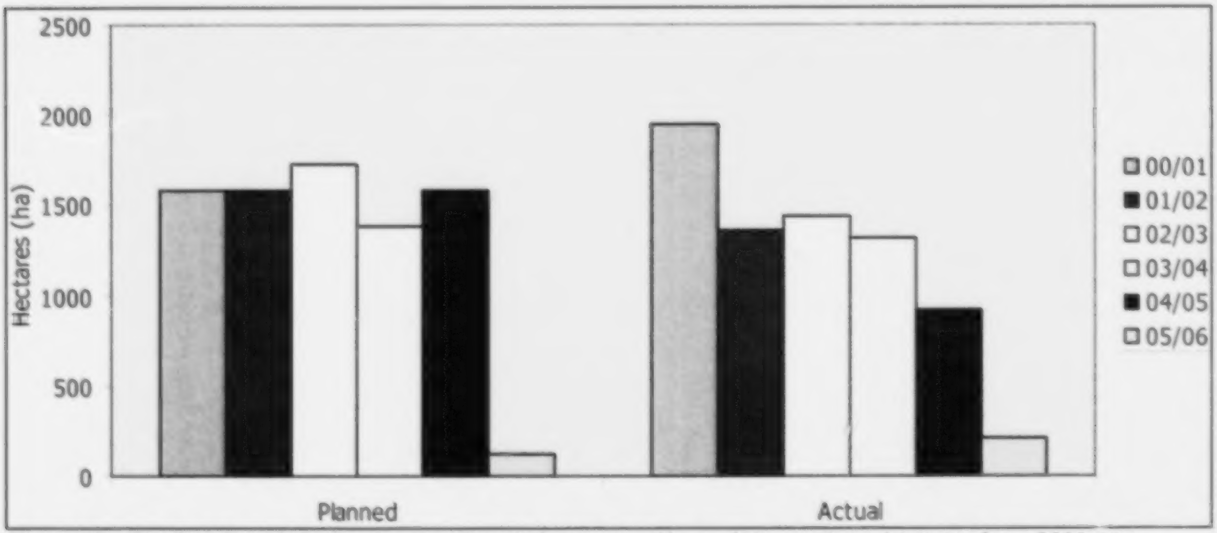

Figure 10. Tending Trends in the Sapawe Forest Comparing Planned Versus Actual Activity from 2000-01 to 2005-06.

3.4.6 Access

The audit team sampled a number of access activities including primary and secondary road construction and maintenance, tertiary road construction, aggregate pit development, and rehabilitation and water crossing installations and decommissioning. Road construction activities were conducted according to the FMPs, with several examples of road location being very well done in difficult terrain situations.

During the field audit, a sample of aggregate pits was examined to assess conformance to the Aggregate Resources of Ontario Provincial Standards[12]. A number of these aggregate pits, both Category 9 and Category 14, were found to be below technical and safety standards. Examples of the aggregate pit standards not abided by include: inappropriate sloping for rehabilitated pits or inactive areas of pits; removal of aggregate material below the water table; an operating face undermining a roadway; operating faces too close to the treeline; and, borrow pits near roadways and without rehabilitation. Audited examples of inactive aggregate pits that had not been operated or rehabilitated properly are presented in Figure 11.

Recommendation 4: AFP must ensure that all aggregate pits comply with the requirements of the Aggregate Resources of Ontario Provincial Standards and that deficiencies of the type identified during the audit are corrected.

All types of water crossings examined by the audit team were found to be well done with a few exceptions. In one case, examination of a bridge installation revealed that although the installation itself was well done, the road approaches to the bridge had no erosion and sedimentation control to protect water quality as required in the Environmental Guidelines for Access Roads and Water Crossings[13] (Figure 12).

Recommendation 5: AFP must ensure that road approaches to water crossings are constructed to include erosion control and/or sediment control to protect water quality.

A number of decommissioned water crossings were examined during the field portion of the audit. All water crossing decommissioning efforts that were inspected were found to have been well done. Figure 13 illustrates two examples of water crossings that were decommissioned during the audit period.

During the construction and maintenance of access into the forest, it is important to ensure that the flow of water is not impeded. While it is common for larger, more complex water crossings to receive a high degree of care during their planning, installation and maintenance, the importance of cross drainages cannot be overlooked. During the field portion of the audit, the audit team saw numerous situations of inadequate cross drainages where roadways were impeding natural water flow and flooding treed areas on the upslope side of the road. It should be noted that the field audit was performed after a period of considerable rainfall on the Forest.

Recommendation 6: AFP must ensure that adequate cross drainages are installed during road construction.

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[12] MNR. 1997. Aggregate Resources Provincial Standards. Category 9: Pit Above Water and Category 14: Forest Industry (Revised June 21, 2006).

[13] MNR. 1990. Environmental Guidelines for Access Roads and Water Crossings. Ont. Min. Nat. Res., Queen's Printer for Ontario. 65 pp.

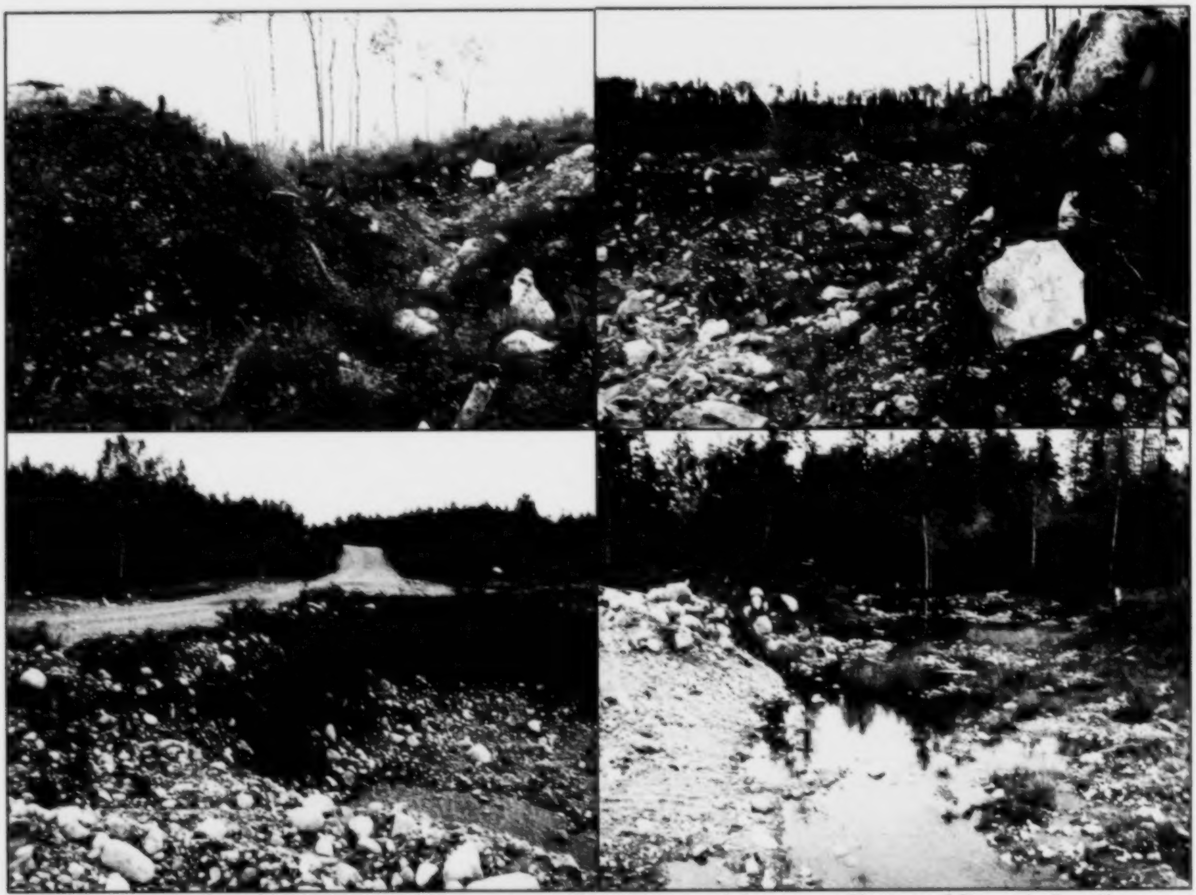

Figure 11. Examples of Poor Practices in Aggregate Pits. (Top row) Improper Sloping of Faces in Inactive Category 14 Pit. (Bottom left) Operating Face Undermining Road. (Bottom right) Operating Area Too Close to Water Table.

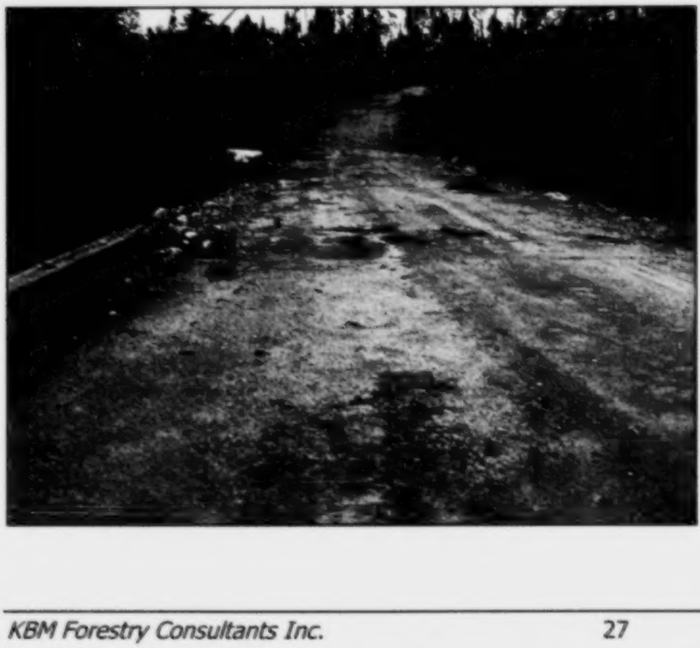

Figure 12. Example of an Approach to a Bridge without Erosion Control and/or Sedimentation Control to Protect Water Quality.

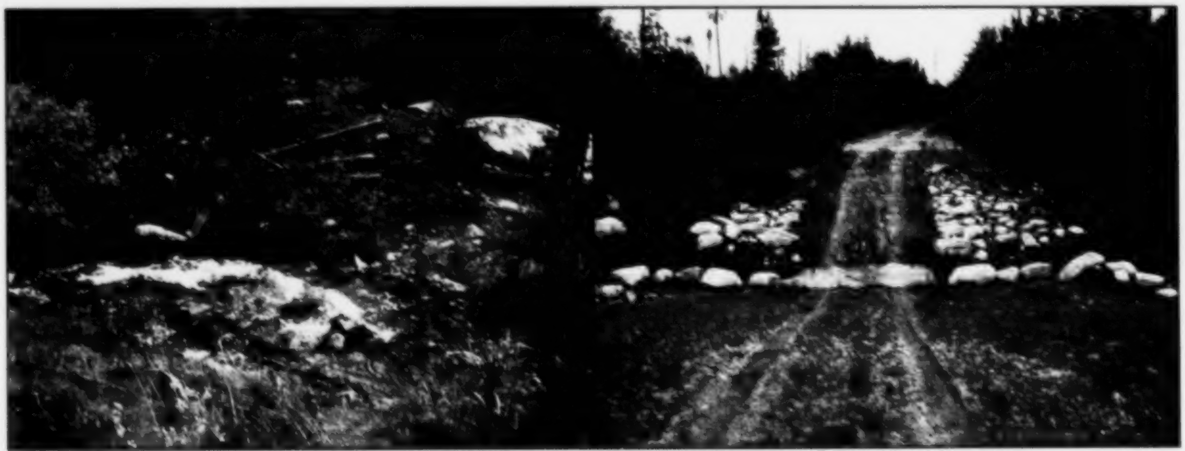

Figure 13. Examples of Good Water Crossing Decommissioning Efforts on the Sapawe Forest.

3.5 Systems Support

3.5.1 Human Resources

Because AFP is certified to a recognized sustainable forest management standard, in this case SFIS, and undergoes regular external audits to verify conformance to the standard, the 2007 IFAPP considers the human resources aspects of the audit to have been met. The audit team observed that new foresters receive training from earlier forest managers through an informal succession plan. This mentoring of new staff by retired personnel is a reflection of the retiree's personal commitment and the AFP/MNR cultures that value and encourage this type of interaction.

One of the HPAs dealt with compliance and ongoing training of operators on the Forest. A sample of training records was reviewed in this regard. The Buchanan Group of Companies, of which AFP is a member, has a self-declared environmental management system (EMS) under which training in a variety of topics is provided to staff, contractors and workers. For example, training modules include general environmental awareness, unauthorized harvesting, and operating near water and riparian zones. Periodic refresher training is also conducted. Training records could not verify that all operators working on the Forest received EMS training. Awareness of requirements is also communicated to contractors using a pre-start checklist for each operation block. The list covers EMS, operations (e.g. fuel tanks), compliance (e.g. sensitive sites, snag trees), fire, and health and safety. The checklist is signed and dated by both the AFP representative and the contractor.

3.5.2 Documentation and Quality Control

AFP relies upon Buchanan's GIS services in Thunder Bay to provide most mapping and data storage services. Hard copies of field silviculture records and other field information are stored at the AFP office. These data were made available to the auditors and were found to be complete and accurate in the field. Central Computing Services, a service division of Buchanan, is developing a system to store these records electronically so that they can be accessed in the GIS. AFP has most of its forest management program plans and records stored in electronic format. The data was used as the principal source for the audit field inspection and was found to be accurate and complete.

Silviculture treatments and monitoring records are stored in a mixture of electronic and paper formats. AFP is moving to full electronic data storage in its GIS. The maps and data produced by this blended system were also used by the audit team in conducting the audit. While the data was reliable and well presented, access to various paper records required the assistance of staff with many years of experience on the Forest. Furthermore, several problems were noted in the tracking of Class X, Y, and Z lands as described in the ARs and Section 3.8 of this report. There is a risk that the record of extensive forest management experience on the Sapawe Forest may be lost if it is not updated into a properly maintained electronic data base.

Recommendation 7: AFP must review its forest management records management system for the Sapawe Forest to ensure that data is secure and available for updating the silviculture record system under development.

3.6 Monitoring

3.6.1 General Monitoring

To ensure that forest operations are performed in accordance with provincially mandated direction, regular compliance inspections are performed and reported. The responsibility of compliance monitoring is held jointly between industry and MNR, although MNR's role is primarily one of spot checks on industry activities and investigations (verification) of reported non-compliances.

Prior to 2006, MNR compliance monitoring was described in a five-year plan and included a broad range of resource activities as well as forestry. Although its mandate for ensuring compliance remains intact, MNR no longer is required to prepare District Compliance Plans beginning April 1, 2006. The audit team was provided with an MNR Compliance Plan in the form of a compliance matrix for the Atikokan Area, including the Sapawe Forest, and target inspection for 2006-07. The matrix included date of inspections, a description of action taken and an indication of whether or not follow-up was required.

AFP had prepared Five Year Compliance Plans as sections of both the 2000-05 and 2005-10 FMPs. Annual Compliance Plans were included in the AWS submissions as required. All compliance related documents met requirements. Table 6 shows the number of compliance inspections by both AFP and MNR over the audit term. MNR compliance staff indicated that all non-compliances reported by AFP are verified in the field and that these verification inspections are not included in the Annual Report figures.

Table 6. Summary of Compliance Monitoring Activity Performed by AFP and MNR Over the Audit Period.

Year	Access	Harvest	Renewal, Maintenance & Tending	Total Inspections	Non-Compliances Reported	% Compliance
Summary of Compliance Inspections Performed By AFP						
2002-03	2	29	5	36	5	86
2003-04	10	31	7	48	9	81
2004-05	8	30	8	46	4	91
2005-06	4	40	5	49	9	82
2006-07	6	23	4	33	0	100
Total	30	153	29	212	27	87
Summary of Compliance Inspections Performed By MNR						
2002-03	3	11	0	14	0	100
2003-04	2	8	0	10	3	70
2004-05	0	5	0	5	5	0
2005-06	5	6	1	12	5	58
2006-07	0	2	4	6	0	100
Total	10	32	5	47	13	72

Note: Figures for 2006-07 were taken from the draft Annual Report as provided by AFP.

As part of the Buchanan Group, AFP's operating strategies are set at corporate levels beyond that of AFP. Compliance monitoring was one component of business of the SFL wherein a more common approach across the Buchanan Group directed the approach used by AFP. A system was developed by the Buchanan Group where company-wide compliance inspections would be provided by a core group of compliance inspectors based in Thunder Bay. The objective was to maintain the required level of compliance inspections for the SFL with a greater degree of consistency and independence from the actual operators.

Forest renewal monitoring consists of frequent site inspections, surveys with numerous margin notes and good communication between MNR and AFP. The ARs and RPFO met/exceeded requirements and MNR follow-up was good. For example, MNR committed to examining the historical range of white and red pine in the 2000-05 plan and the results were used in the 2005-10 FMP.

MNR also produced a Silviculture Effectiveness Monitoring (SEM) Report in 2005 and 2006. This report professionally presented results of some verification work. Audit team findings were consistent with the trends identified in the report.

AFP conducts several forest renewal surveys beginning with tree plant quality assurance, survival, tending and culminating in Free to Grow (FTG) surveys. All surveys use a 50 m^2 circular plot or ocular estimates on the ground. The sample intensity of the FTG plots and their locations are discretionary. FTG surveys also use visual (ocular) estimates from the ground or from the air. The survey results obtained from experienced personnel were observed by the audit team to be reliable but several questionable results were obtained by contractors and part-time employees.

For example, Block 13640 had results from a survey completed by a contractor that appears to have been conducted in an adjacent stand and hence do not represent the correct attributes. Ocular estimates of species composition from AFP part-time employees did not match observation by the auditors on two blocks near Crooked Pine Lake.

Several blocks in the northeast portion of the Forest have reasonable species composition described for the block level but might better describe the forest condition if the block were divided into several smaller stands. This was also noted as an issue in the MNR SEM Report. Two blocks near Nora Lake are white pine shelterwood harvests. There are new FRI procedures for describing two layered or complex stands that should be used in the FTG process for these stand types.

Many FTG calls on the Sapawe Forest were based upon surveys consisting of 50 m^2 plots for density counts of tree species. The sample intensity is discretionary and some blocks may have too few plots to produce reliable results. Density is not the same as stocking used in the FRI system. Stocking is an estimate of growing space occupancy in young stands and basal area ratios in older stands. Sampling methods to estimate basal area in older stands is proportional to tree size whereas density count trees have equal probabilities for selection in fixed area plots. In Block 903 many small birch stems led to a birch leading FTG call whereas a stocking based call would have labelled the stand as spruce leading (Figure 14).

The majority of FTG calls were reasonable descriptions of forest conditions. All stands declared FTG met the SGR definitions of acceptable renewal standards. Some stands that have met FTG standards are not called FTG if another tending treatment may be required. This is a good practice. Nonetheless, the system could be improved upon to better assess silviculture effectiveness and for updating the FRI.

Recommendation 8: AFP must review its FTG methods and make improvements to the system for both updating the FRI and assessing silviculture effectiveness.

3.6.2 Annual Report

The ARs met requirements and provided thoughtful commentary and interpretations of trends and variances from planned activities.

An IFA was conducted on the Sapawe Forest in September, 2002 covering the five year period April 1, 1997 to March 31, 2002. The audit was mentioned in subsequent ARs beginning with the Spring 2002-03 AR. The list of recommendations and suggestions was presented in the Spring 2003-04 AR. The Year 10 AR included the actions planned to address the two recommendations and ten suggestions arising from the audit, and noted that an Action Plan Status Report was approved in October, 2005 and made publicly available.

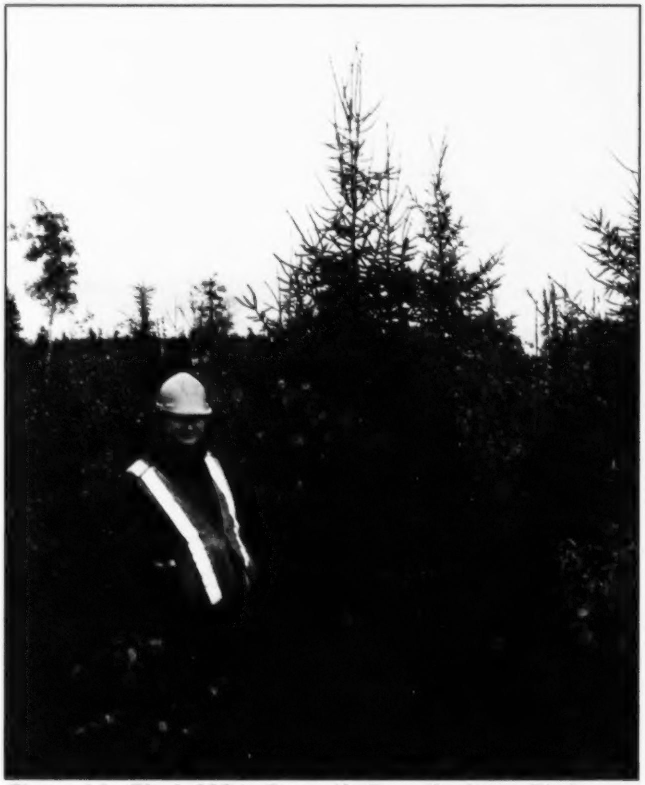

Figure 14. Block 903 is Currently Described as a Birch Stand Based on Density Count Plots but Should be Described as a Spruce Stand in the FRI.

3.6.3 Report of Past Forest Operations

The Sapawe Forest 1995-00 RPFO was reviewed and included four general issues that could be addressed within the 2005-10 FMP. The issues noted were:

1. Inaccuracies in FRI stocking levels and related volume estimates;
2. Inclusion of certain indicators of sustainability to provide meaningful trends from the previous plan term, and provide baseline information for future reports;
3. Reduction of the land base available for timber production due to land withdrawals (affects FRI classifications, strategic modelling and future wood supply desired levels); and,
4. Disturbance by size class information related to landscape pattern analysis to be included in the FMP to aid in assessment of objective achievement.

The 2005-10 FMP text and SFMM modelling were reviewed to determine if changes were made in consideration of the above issues. The land base for the FMP was revised and modelled to incorporate the most up-to-date classifications including ownership, availability for timber production and FTG survey data. Harvest volume assumptions were revised including the yield curves, unharvested volume proportions and areas reserved from harvesting (accumulating reserves). These factors represented the best available information to improve volume estimates in the 2005-10 FMP. The natural disturbance pattern and emulation analysis was completed as required in the FMP. Indicators of sustainability were analyzed in the 2005-10 FMP which provides information for trends from the previous plan and information to be compared in future plans and ARs. All issues related to the strategic modelling assumptions that were identified in the RPFO that could be addressed in the modelling were addressed. The audit team concluded that the issues identified in the RPFO were addressed while developing the assumptions associated with the strategic modelling in support of the 2005-10 FMP.

The 2004-05 AR was completed as a Year 10 AR under the 2004 FMPM. The report included the required review of the validity of modelling assumptions, with revisions identified for the next FMP. Model assumptions recommended for specific consideration in the 2010 FMP were yield curves for hardwood dominated forest units, and regular updates to the forest resource inventory.

The 2004-05 Year 10 AR did not provide a comparison of the changes to the demographic profiles for the dependent communities as a result of changes in the wood-flow, nor did it discuss differences in the communities considered for the profiles due to the changes in wood flow. The AR presented a summary of the current situation as a benchmark for future comparisons of the changes in the major economic and social indicators.

The Year 10 AR contained a detailed accounting of the success of silvicultural treatments (planting, seeding, natural regeneration, site preparation and tending), the accuracy of future forest unit predictions, and the year of successful regeneration. It also included a discussion of the amount of operations to date, silvicultural effectiveness, and trends found in harvest and regeneration, including recommendations for future effectiveness and expenditures.

3.7 Achievement of Management Objectives and Forest Sustainability

3.7.1 Achievement of Management Objectives

According to the 1996 FMPM, objectives are developed for benefits or outcomes that can be achieved by managing forest cover. The audit team reviewed the achievement of objectives associated with the 2000-05 and the 2005-10 Sapawe Forest FMPs. A summary of the objectives, with comments, is presented in Tables 7 and 8.

Table 7. Audit Team Assessment of the Achievement of the 2000-05 Sapawe Forest FMP Objectives.

Objective	RPFO Author's Assessment of Achievement	Audit Team Comments
1.0 Forest Diversity		
1.1 To manage the forest composition and age class structure to develop a landscape pattern that is similar to natural disturbance (wildfire) through patch sizes and layout patterns that imitate fire. To implement the Forest Management Guidelines for the Emulation of Fire Disturbance Patterns (Draft) within each of the three site regions within the Sapawe Forest, where possible.	Forest operations were conducted and the requirements of each of the guide requirements have been implemented during those activities.	Partially Agree. Movement towards natural pattern and structure is being achieved but forest composition objectives may be compromised due to underachievement of harvest in some forest units and a drop in the tending program.
1.2 To develop and maintain a forest age class structure for all species, similar to natural disturbance patterns. This will contribute to snags and down woody debris, and displays old growth characteristics by trying to conserve a portion of the land base that is composed of trees above their physiological maturity age.	It will be many years before this objective is achieved.	Agree. SMA yielded best outcome but trend is to retain less old forest than natural benchmark levels suggest.
1.3 To Protect, Maintain, and Restore the white and red pine component of the forest.	....there has been a consistent and significant increase in the amount of red and white pine on the forest.	Agree.

Continued on next page.

Table 7 continued.

Objective	RPFO Author's Assessment of Achievement	Audit Team Comments
2.0 Social and economic matters, including timber harvest levels - Wood Supply		
2.1 To support local economic and social interests through sustainable management of the forest for industrial, commercial, tourism, and recreational opportunities to assist in maintaining the economic viability of Atikokan and the surrounding area. In an effort to satisfy the industrial demand, to make the sustainable harvest area available through good Forest Management and consultation with tourism establishments, other users, and the public. The SEIM will be used to measure targets associated with this objective.	SFMM was used to achieve the socio-economic objective. The socioeconomic profile indicated that the Fort Frances District is approximately 15 times more dependant on the forestry sector than the provincial average. The Forest supports 59 identified tourism establishments, 20 trap lines, 10 licensed Commercial Baitfish harvesters, 22 Bear Management Areas and 321 patent/private landowners, including 22 cottages or cottage subdivisions.	Agree. AFP consulted with other resource users and took their needs into account during the planning process. AFP used SFMM to assist in planning harvest and renewal operations that maintained the long term social and economic benefits to the local communities. SEIM model was used to assess the impact of implementation of the SMA.
2.2 To make available a sustainable and continuous flow of wood fibre to the designated processing facilities as outlined in Appendix E of the Sapawe Forest SFL no. 542441.	AFP received 92%; Fibratech only achieved 42%; Manitou Lumber received no White Birch sawlogs	Agree. Wood was available although some parties did not require it from the Sapawe Forest.
2.3 To manage forest cover and access near established tourism values to maintain the aesthetic and remoteness value. To communicate through the planning process with each establishment that will be affected by forestry operations.	...every effort is made to effectively communicate with tourism establishments; numerous strategies employed to help minimize the impact of operations; strong working relationship between the SFL holder and tourist outfitters.	Agree. Tourism values protected through timing restrictions, buffers, viewscapes and access controls. Consultation occurs with tourism operators.
2.4 To provide opportunities for road based tourist operators. To communicate through the planning process with each establishment that is affected by forestry operations.	...road based tourism outfitters concerns were developed into the FMP; woodlands staff is constantly in the field and has open communication with affected stakeholders; no negative issues have being recorded.	Agree. AFP consulted with road based tourist operators and maintained a well developed road network over the unit except for areas designated for remote tourism.
2.5 To conserve the aesthetic value along Highways 11, 622 and along the boundaries of Quetico and Turtle River Provincial Parks. Where areas are selected for harvest, prescriptions will be developed that take into account the visual impact of harvesting. Renewal operations in all harvest blocks adjacent to Highways 11 and 622, and where required along the boundaries of the Provincial Parks will be accelerated.	... harvesting and subsequent renewal activities along Highways 11, 622 and along the Quetico Boundary; issues are minimized by ensuring blocks sizes are small and spread out over successive plans, if possible.	Agree. Standing timber reserves retained; prompt regeneration (natural and artificial).
2.6 To protect cultural and heritage values and to recognize the traditional use of the forest by working with the local communities including First Nation communities that are adjacent to the unit.	...ongoing communication with First Nations; to date there have been no loss or damage to cultural heritage values.	Agree. High potential cultural heritage areas identified; prescriptions prevent damage.

Continued on next page.

Table 7 continued.

Objective	RPFO Author's Assessment of Achievement	Audit Team Comments
2.7 Although there are no First Nations Communities within the Sapawe Forest, AFP will continue to provide employment opportunities to First Nation persons through forestry operations. AFP presently employs Metis and First Nation people within their forestry and mill operations, and will continue to do so.	...moderate success; active First Nations employed in silviculture activities (tree planting, pre-commercial thinning, etc.) and in the Sapawe Sawmill; First Nations Partnership Program with the Lac des Mille Lacs for silviculture activities.	Agree. AFP employed Metis and First Nation people within their forestry and mill operations.
2.8 Using information sessions to work with other resource users in the management planning of the forest. To work with the LCC and other resource licence holders within the unit, and the general public to further the community understanding of forest management practices.	....company attends LCC meetings for various issues; ... actively communicates with Overlapping Forest Resource License;... active and open communication between tourism outfitters, general public, other stakeholders and the company.	Agree. AFP staff attended LCC meetings and provided periodic updates. AFP staff met with tourist operators.
2.9 To maintain and update the forest resource inventory and to correct any errors and verify any inconsistencies found within the new digital FRI database.	...constant updating and verification of the land base through annual timber cruise projects and forest sampling.	Agree. AFP made efforts in several ways to ensure this objective met.
3.0 Provision of forest cover for those values which are dependent on forest cover.		
3.1 To maintain a forest landscape that provides suitable habitat for all species through habitat management for featured species and to select suitable areas to manage for each of these species or sets of guidelines.	13.5% of capable areas in cores (9 core areas established) during the 2000 plan term distributed evenly across the management unit; amount of wildlife habitat created is within the bounds of natural variation	Agree. Moose and marten are featured species; marten cores identified; prescriptions implemented to protect specific wildlife values (e.g. stick nests, MAFAs); snags left as per marten guideline.
3.2 To manage forest cover within that portion of the Quetico Park watershed on the Sapawe Forest so that the quality of water flowing into Quetico is protected.	Boundary layout incorporated locations of riparian and water quality reserves ...in addition to any viewscape requirements for harvest blocks adjacent to the park; silvicultural activities accelerated in blocks situated adjacent to Turtle River and Quetico Provincial Parks on Highways 11 and 622.	Agree.
3.3 To convert balsam fir and white birch forest units to forest units that better reflects a natural forest composition and age class structure. Past harvesting and lack of renewal activities prior to about 1960 have contributed to higher levels of these forest units on the Sapawe Forest.	Objectives not achieved fully on due to extenuating circumstances that affected the company's ability to operate within these stands.	Agree.
4.0 Silviculture		
4.1 Maintain the long term productivity of the forest through harvesting, renewal and maintenance activities for white pine, red pine, jack pine, black spruce, white spruce, and poplar.	Approx. 1,200 hl of cones collected; FOPs were prepared on an annual basis.	Agree, with some concerns on shallow sites and under achievement in some forest units. See Recommendation 2.

Continued on next page.

Table 7 continued.

Objective	RPFO Author's Assessment of Achievement	Audit Team Comments
4.2 To restore white and red pine on appropriate ecosites where feasible.	Pw trees planted 251,940; Pr trees planted 653,000; Maintenance has been steadily increasing.	Agree.
4.3 Maintain a component of the mixed wood forest by ensuring the following forest units are maintained on the Forest (ConMx, HrdMx, and MxWd).	Mixed forest conditions regenerated; prudent use of herbicides.	Agree, these cover types are being maintained but the amount of area in these mixedwood types could exceed plan objective levels if recent drops in tending and under-harvest of some mixedwood cover types persist.
4.4 To co-operate with forest research and development agencies on the management unit to address local forest management issues.	AFP actively involved with Forest Health Scientists, Research Scientists (Pre-commercial thinning projects), Canadian Forest Service and Superior Woodlands Trees Improvement Association in co-operation with the Forest Ecosystem Science Co-operative.	Partially met. Cold water systems study concluded prior to plan implementation.

Table 8. Audit Team Assessment of Achievement of the 2005-10 Sapawe Forest FMP Objectives.

Objective	Audit Team Assessment of Progress Toward Achievement	See Recommendation or Suggestion
1.0 Forest Diversity		
1.1 To manage the forest composition and age class structure to develop a landscape pattern that is similar to natural disturbance (wild fire) through patch sizes and layout patterns that imitate fire. To implement the NDPEG.	Partially Met in pattern and structure. Movement towards a mixture of disturbance patch size classes although the proportion of large disturbances remains under-represented compared to predicted estimates. NDPEG being applied. May not be met for composition due to under achievement of harvest in some forest units (2002-05) and reduction in tending (2006-07).	Recommendations 3 and 9
1.2 To develop and maintain a forest age class structure for all species, similar to natural disturbance patterns. This will result in a portion of the landbase being composed of old trees that contribute to snags and down woody debris, and other old growth characteristics.	Partially Met. SMA yielded less old forest than natural benchmark levels suggest.	
1.3 To protect, maintain, and restore the white and red pine component of the forest.	....there has been a consistent and significant increase in the amount of red and white pine on the forest.	Agree.

Continued on next page.

Table 8 continued.

Objective	Audit Team Assessment of Progress Toward Achievement	See Recommendation or Suggestion
2.0 Social and economic matters, including timber harvest levels - Wood Supply		
2.1 To support local economic and social interests through sustainable management of the forest for industrial and commercial, tourism, and recreational opportunities to assist in maintaining the economic viability of Atikokan and the surrounding area.	On track. SMA yielded most consistent results for wood supply flow; protection afforded to other economic interests on the Forest. AFP consulted with other resource users and took their needs into account during the planning process. AFP used SFMM to assist in planning harvest and renewal operations that maintained the long term social and economic benefits to the local communities.	
2.2 To make available an uninterrupted flow of wood fibre to the designated processing facilities at levels indicated below and outlined in greater detail in Appendix E of the Sapawe Forest SFL no. 542441.	On track. Wood has been available although some parties receiving their wood supply from elsewhere.	
2.3 To manage forest cover and access near established tourism values to maintain the aesthetic and remoteness value.	On track. Tourism values protected through timing restrictions, buffers, viewscapes and access controls. Consultation occurs with tourism operators.	
2.4 To conduct a comprehensive review of the existing road infrastructure and identification of silvicultural values and long term wood supply.	While the segment related to road infrastructure is relevant to social and economic matters, the remainder is not and appears out of place. The strategies deal with the relevant issue and have been met.	
2.5 To conserve the aesthetic value along Highways 11 and 622 and along the boundaries of Quetico and Turtle River Provincial Parks.	On track. Standing timber reserves retained; prompt regeneration (natural and artificial).	
2.6 To protect cultural and heritage values and to recognize the traditional use of the forest by working with the local communities including First Nation communities that are adjacent to the unit.	On track. Areas modelled as high potential cultural heritage values identified during planning; AOC prescriptions applied. MNR values updated with new information as it becomes available. Ongoing communications with the Lac des Mille Lacs First Nation and Wabigoon Lake Ojibway First Nation to identify values, concerns and issues. AFP employs Metis and First Nation people within their forestry and mill operations.	
2.7 To raise public awareness regarding forest management planning forest management.	On track. AFP uses information sessions and the public notification process to work with other resource users. AFP works with LCC and the general public to further community understanding and obtain input regarding forest management practices. AFP attends LCC meetings to provide periodic updates, and maintains close contact with tourism establishments.	

Continued on next page.

Table 8 continued.

Objective	Audit Team Assessment of Progress Toward Achievement	See Recommendation or Suggestion
2.8 To maintain a FRI which accurately represents the condition of the Sapawe Forest and to update this inventory as required.	On track. FRI based on 1995 and 1996 1:20,000 panchromatic aerial photography. Continues to be updated with some timber cruising and annual depletion updates using aerial photography products.	
3.0 Provision of forest cover for those values which are dependent on forest cover.		
3.1 To maintain a forest landscape that provides suitable habitat for all species on the Sapawe Forest through habitat management for featured species and to select suitable areas to manage for each of these species or sets of guidelines.	On track. Moose and marten are featured species; marten cores identified; prescriptions implemented to protect specific wildlife values (e.g. stick nests, MAFAs); NDPEG applied; trends in habitat for selected species follow Null benchmark and are acceptable up to desired future forest condition.	Suggestion 4
3.2 To manage forest cover within that portion of the Quetico Park watershed on the Sapawe Forest so that the quality of water flowing into Quetico is protected.	Boundary layout incorporated locations of riparian and water quality reserves ...in addition to any viewscape requirements for harvest blocks adjacent to the park; silvicultural activities accelerated in blocks situated adjacent to Turtle River and Quetico Provincial Parks on Highways 11 and 622.	
3.3 Reduce the area of white birch forest unit by renewing stands with other species including white and red pine where silviculturally appropriate. Reduce the area occupied by the mixedwood forest unit while, potentially renewing some stands to white pine, red pine, jack pine and spruce where silviculturally appropriate, and retain a portion of this forest to maintain biodiversity related objectives for habitat, and forest cover.	Same concerns as per Objective 1.1.	Recommendations 3 and 9
4.0 Silviculture		
4.1 Maintain the long-term productivity of the forest through harvesting, renewal and maintenance activities for white pine, red pine, jack pine, black spruce, white spruce, and poplar.	On track with some reservation. The forest harvest and renewal programs are maintaining site productivity although there are some concerns about slash management and future forest composition targets.	Recommendations 1 and 9
4.2 To restore white and red pine on appropriate ecosites where feasible.	On track. Red and white pine planting has increased. See Best Practise 1.	
4.3 To maintain the presence of the mixedwood forest.	Mixedwoods are being maintained, however the amount exceeds levels set in planning objectives.	Recommendation 9

Continued on next page.

Table 8 continued.

Objective	Audit Team Assessment of Progress Toward Achievement	See Recommendation or Suggestion
4.0 Silviculture		
4.4 To provide long term access for silvicultural treatments in areas identified as being important to the future wood supply.	On track, with the following concerns: operating access to many areas within the Sapawe Forest are temporary for reasons of maintaining the remote tourism values and interests. In these cases, it is impossible to ensure long term access.	
4.5 To enhance future wood supply on the forest by implementing an intensive silvicultural programme on identified sites where significant silvicultural investment should be made to accelerate the development of younger stands.	On track, with concerns over the efficacy of the chemical tending program.	Recommendation 3

The current forest industry crisis may contribute to forest practices that will reduce costs but may also have a negative impact in achieving forest composition targets. These practices included under achievement of harvests in some forest units (Section 3.4.2.), an increase in the use of seeding on mixedwood sites (Section 3.4.3) and a reduction in tending (Section 3.4.4.).

The HrdMx and MxWd forest units were about 55,000 ha in 2000 but were reduced to approximately 18,000 ha by reclassifying forest units in 2005. The 37,000 ha of formerly classed HrdMx and MxWd mixedwood forest was partitioned to PjDom, PoDom, BwDom, and ConMix forest units in the 2005-10 FMP. This reduction in mixedwood forest, which is consistent with plan objectives but achieved by reclassification alone, might be considered by some to be a "shell game."

For this reason, the trends in the forest units in FMP-12 of the 2005-10 FMP were compared to those in FMP-12 of the 2000-05 FMP by the audit team. Although a direct comparison is difficult due to the changes in forest unit definitions between 2000 and 2005, some general trends emerged.

The MxWd forest unit is expected to increase from 3,400 to 5,600 ha by 2095. This is contrary to the plan objectives as is stated in the FMP text. However, this trend is more than compensated for by the trend in the other forest units that include some mixedwoods. The PjDom, PoDom, BwDom, and ConMix decrease from about 132,000 ha to 103,000 ha, and SbUpl increases by about 10,000 ha. This reduction in some mixedwoods in the 2005-10 FMP follows a pattern similar to the 2000-05 FMP. The practices in the field will support these trends and the objectives related to forest composition and the reduction in mixedwoods as planned in both FMPs, albeit with some concerns as noted in previous sections related to the under-harvest of certain forest units, an increase in seeding over planting on some sites, and the recent decline in tending (see Recommendation 3).

It appears that although the new forest unit classification may be reasonable, it may have generated some confusion in the 2005-10 FMP and may create some problems in tracking how well the objectives are being met in the long run. The forest composition targets and forest unit classification system deserves further review in the next FMP.

Recommendation 9: MNR and APF must carefully evaluate forest composition objectives and forest unit classifications in the development of the next FMP to ensure that they can clearly communicate the desired forest conditions in ways that can be monitored over time.

3.7.2 Review of RPFO Assessment of Sustainability

The Year 10 AR contained an extensive discussion on the achievement of forest sustainability. The assessment was conducted through an examination of the measurable indicators of forest sustainability criteria and an analysis of changes to forest condition and socioeconomic condition. The assessment is recent to forest management and does not yet benefit from long term trend information for many indicators.

Because forest unit definitions changed between the 2000-05 FMP and 2005-10 FMP the RPFO author concluded that forest unit trends will be better evaluated at the end of the 2005-10 plan term. The audit team has encountered this situation on other forests and agrees that stable forest units are very important to assessing long term trends.

The managed area available for timber production increased by approximately 13,000 ha between the 2000-05 and 2005-10 FMPs through additions to the landbase and inventory updates, although the landbase is predicted to decline to 2000 levels in the long term. No explanation was given for the long term decline in area. The author stated that an analysis of trends associated with landscape pattern and forest diversity indices was impractical given that actual data was only available for a single term. The author conducted an evaluation as an academic exercise, speculating on what trends might develop.

Actual data was available for only a single term for habitat available for selected wildlife species, and therefore only a comparison with predicted future levels was provided. However, predicted values at 2080 and 2100 were inconsistent with Table FMP-5 values from either plan, making conclusions regarding possible trends questionable.

Landscape processes, as assessed through an analysis of trends in disturbance within second order watersheds, is no longer tracked as an indicator of forest sustainability under the 2004 FMPM.

An analysis of changes over five planning terms (1985-2005) was provided for the various working groups on the Forest. Declines in the spruce, balsam fir and white pine working groups were evident, with jack pine and red pine working groups demonstrating significant increases. Utilization of the available harvest area showed a significant increase across virtually all working groups.

The author also discussed the use of wood from the Forest by various area mills, the largest user being AFP located in Sapawe, as well as non-industrial uses of the Forest. No specific trend information was presented.

Four recommendations were made to future planning teams: cooperation between the SFL holder and various stakeholders, improvement of hardwood yield curves, improvements in modelling of natural disturbance emulation, and adjustments to marten cores.

3.7.3 Review of the Comparison and Trend Analysis of Planned versus Actual Forest Operations

The auditee prepares a TAR to provide historical information on trends and changes associated with forest management over several planning terms. AFP prepared two versions of the TAR (initial and revised) which covered three planning terms (1995-00, 2000-05, and 2005-10) and 11 years of operations, since reporting information is only available for the first year of the current term. The revised version of the TAR was found to be correct and complete by the audit team, as assessed against the requirements of the IFAPP.

Information in the TAR was also provided from 1990 regarding changes in conifer and hardwood working groups, harvest volumes, and the success of regeneration efforts. The TAR noted that the 2000-05 and 2005-10 FMPs were developed under the 1995 FRI, whereas the 1990-95 and 1995-00 Timber Management Plans were developed under the 1983 FRI.

The total forested landbase declined by approximately 4% (9,000 ha) attributable principally to withdrawals for parks and protected areas associated with the OLL initiative. The total of barren and scattered/not satisfactorily regenerated and depleted lands remained constant at approximately 12% of the production forest landbase at 1995 and 2005. Red pine working group showed a steady increase in area while balsam fir working group declined by 76% (14,600 ha) due to spruce budworm mortality. The overall balance between conifer and hardwood remained relatively constant.

Harvest volume data showed a significant increase in both annualized total volume (approx. 100,000 m^3/yr to approx. 181,000 m^3/yr) and the proportion of planned levels actually harvested (25% vs. 71%) between 1990 and 2005. This was attributed to increased use of the available resource by AFP. For the period 1995-2005, when planned volumes were adjusted for actual area harvested the latter figures showed a lower range of values (71% to 94%) and presents another perspective on utilization of the planned harvest area. There was a 35% decline in planned harvest volumes (approx. 100,000 m^3/yr) from 1990-2005 despite only an 11% decrease in planned harvest area[14] (ref. TAR in the 2002 IFA).

Jack pine, spruce and poplar were the predominant species harvested. Of the remaining major species available for harvest, white birch was consistently underutilized ranging from 13% to 31% actual versus planned harvest area for the 2000 and 1995 FMPs respectively. Markets for white birch continue to be weak.

Planned average yields (m^3/ha) were 154, 119, and 117 over the three terms during the 1995-2005 period while actual average yields were 109, 111, and 95 m^3/ha respectively over the same period, recognizing that the latter figure is based on a single year of reporting. This suggests that yield estimates have improved and better reflect actual yields encountered.

Forest classification definitions changed over the period with a move away from the use of working groups to the use of forest units beginning with the 2000-05 FMP. This led to reductions in area associated with the jack pine, poplar, spruce and white birch types as portions of these forest types were added to the newly-created categories of mixedwood. The balsam fir forest type was dropped in 2005 because of significant reductions due to mortality from spruce budworm. Fine tuning of all forest units continued in the 2005-10 FMP. Given these changes, trends in area and age class structure by forest unit across planning terms are of limited utility for the three planning terms reported in the TAR. A general trend evident from the data was a gap in the 41-60 year age class.

Some distinct trends were evident with respect to the renewal program from 1995-2005. Natural regeneration, site preparation, and seeding decreased while tree planting increased. The TAR author attributed much of the change to efforts to use renewal funds more efficiently, post harvest site inspections, and prompt tree planting to stay ahead of competing vegetation. The total regeneration program remained fairly constant at 1,500 ha to 1,800 ha/year during the period, which compares favourably to an average annualized harvest area of 1,700 ha.

With respect to regeneration success, the TAR reported on the five years of harvest from 1990-1995. Approximately 80% of the 6,200 ha of harvest area was surveyed for regeneration and of this amount 3,475 ha (82%) was declared successfully regenerated. The TAR notes that of the 1,959 ha surveyed but not declared FTG, the majority (amount unspecified) is now FTG, but is assigned a forest unit different from the one intended. This area will be reported as FTG in the 2006-2007 AR (not available at time of audit).

3.7.4 Achievement of Forest Sustainability

Prior to the implementation of the CFSA the objective of forest management was to provide timber to the forest industry in a manner consistent with sound environmental practices and to provide for other uses of the forest. With implementation of the CFSA in 1995, recognition was given to the importance of forest sustainability. It should be kept in mind that the means of achieving forest sustainability under the CFSA is through the management of forest cover. According to the CFSA, forest sustainability is defined as *long-term Crown forest health*. Two key principles are associated with forest sustainability:

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[14] *See* Appendix A: Summary of Report of Past Forest Operations and Trend Analysis *in* David Barker & Associates Ltd. 2003. Independent Forest Audit of the Sapawe Forest 1997-2002. Queen's Printer for Ontario. 59 pp. + Appendices.

1. *Large, healthy, diverse and productive Crown forests and their associated ecological processes and biological diversity should be conserved.*
2. *The long-term health and vigour of Crown forests should be provided for by using forest practices that, within the limits of silvicultural requirements, emulate natural disturbances and landscape patterns while minimizing adverse effects on plant life, animal life, water, soil, air and social and economic values, including recreational values and heritage values.*

An assessment of forest sustainability occurs at the time an FMP is prepared and again following FMP completion, and is reported in the RPFO and/or the Year 10 AR.

The methods of planning for and assessing the achievement of forest sustainability are described in the 1996 FMPM, which was the manual used for development of the FMPs under audit. It begins with an eight-step process that includes gathering background information, setting objectives and developing strategies, identification and analysis of management alternatives, selection of a preferred management alternative, and the identification of specific areas for forest operations. Throughout the process, opportunities are available to the public to participate and provide input into the development of the FMP. The assessment of achievement of forest sustainability involves the analysis of forecasts and trends associated with a set of criteria and indicators of sustainability given in the FMPM.

The Year 10 AR requires an assessment of forest sustainability to the extent reasonably possible, but relies on the reporting requirements contained in the 1996 FMPM to satisfy this requirement for plans prepared using that manual, as was the case on the Sapawe Foresst.

In developing its opinion on the achievement of sustainability on the Sapawe Forest the audit team considered the following:

- 2000-2005 and 2005-2010 Sapawe Forest FMPs;
- AWSs and ARs associated with the above FMPs;
- 1995-2000 Sapawe Forest RPFO (conclusions only);
- Sapawe Forest 2004-05 Year 10 AR;
- Comparison and Trend Analysis of Planned vs. Actual Forest Operations;
- Input from staff of AFP, MNR Fort Frances District and Atikokan Area Office, and members of the LCC;
- Written input received by the public; and,
- Implementation and effectiveness of forest management activities on 56 field stops.

The audit team's summary of the assessment of forest sustainability presented in Table 9 is based on the sustainability criteria contained in the 1996 FMPM that apply at a management unit level. It takes into account the audit findings and the areas of improvement associated with the recommendations resulting from the audit. Based on the information provided and the audit team's review of documentation and examinations of the Forest it is the opinion of the audit team that forest sustainability is being achieved on the Sapawe Forest. This conclusion takes into account the fact that the majority of management objectives set during the 2000-05 FMP term were met and the objectives set during the 2005-10 FMP are on track to be met.

Table 9. Summary of Assessment of Forest Sustainability.

Forest Sustainability Criteria	Met (Yes/No/ Partial)	Audit Team Comments
Biological Diversity	Yes	Forest structure and pattern on track but better clarity needed for composition; biological parameters remain above lower BNV with minor exceptions.
Forest Condition and Ecological Productivity	Yes	Productive forest area has declined slightly; area of harvest and renewal are in balance.
Soil and Water Quality	Yes	Operations generally consistent with conservation of soil and water resources.
Multiple Benefits to Society	Yes	Forest resource is efficiently utilized given markets and local circumstances; utilization of planned harvest area has significantly improved; timber and non-timber uses are balanced.
Accepting Society's Responsibility for Sustainable Development	Yes	Consultation occurs with other forest users; LCC is active and contributes positively to forest management planning.

3.8 Contractual Obligations

3.8.1 Sustainable Forest Licence

SFL No. 542441 for the Sapawe Forest was first issued to AFP in June, 1998. Prior to this the Sapawe Forest was managed by MNR. The SFL was amended twice during the audit term. Specific conditions are included in the SFL that must be met by the SFL holder. The audit team evaluated AFP's compliance with the licence conditions, the results of which are summarized below.

Area, Term and Pricing: The audit team reviewed payment of the Ontario Stumpage Matrix charges for the Sapawe Forest for the audit period and noted that Crown charges and Forestry Futures charges for AFP were not paid in 2006. Invoiced amounts plus interest for this period of $613,345 remain in arrears and discussions for repayment are ongoing between MNR and AFP. Invoiced amounts for the balance of the audit period were paid.

Wood Supply Commitments and Overlapping Licences: Appendix E of the SFL contains three wood supply commitments, two of which are associated with requirements for a memorandum of understanding between the SFL holder and the commitment designee. Paraphrased, the SFL describes the following:

> The Company shall comply with the following wood supply commitments pertaining to the Sapawe Forest:
>
> 1. To make available annually through a long term MOA, a portion of the aggregate total of 10,000 m^3 of white birch fibre to be supplied from the Sapawe, and Crossroute management units, to Manitou Forest Products Limited.
> 2. To make wood fibre available to Fibratech through a long term MOA in accordance and consistent with Supply Agreement 536244 dated January 10, 2005. The Company must enter into and execute the MOA within six months of the amendment of this licence for the inclusion of this condition. A copy of the executed MOA must be provided by the Company to the Ministry upon request.
> 3. To make available an annual supply of 1,500 m^3 of red pine, white pine, jack pine and spruce logs to any other operator(s) as designated by the Minister of Natural Resources.

Manitou Forest Products did not require any of the commitment from the Sapawe Forest for its sawmill operations. Their commitment letter on the Sapawe Forest has been surrendered and the Sapawe licence is being amended to reflect that change. Fibratech received much of its volume from sources other than the Sapawe Forest with MNR assistance. Negotiations between AFP and Fibratech were held but did not lead to a completed agreement. Annual Report figures show evidence of a small amount of use by other operators.

Appendix F states that MOAs shall be developed with Fibratech Manufacturing Inc. and 897453 Ontario Ltd. operating as T&M Logging to conduct harvesting operations. Although MOAs had not been developed for various reasons, opportunities to conduct timber harvesting were made available.

Manuals: The 2005-10 FMP, AWSs, and ARs examined during the audit were prepared in accordance with the 1996 FMPM and 2004 FMPM as described in this report. In addition, AFP collected information in support of planning, including depletion data and FTG survey information. Operations were generally consistent with direction provided in the Operations and Silviculture Manual[15], although certain recommendations in this audit report specify the need for improvement in aspects of access construction and silviculture. Requirements of the Scaling Manual[16] were met and the audit team was impressed by the good fibre utilization evident in harvest blocks on the Forest.

Natural Disturbances and Salvage: Amendments to the 2000-05 FMP were made to conduct salvage harvesting in the Bernadine and Pekagoning Lake areas (totalling 254 ha) as well as the area where blowdown occurred north of Quetico Park (North of Pickerel Lake: 135 ha). These areas were also examined as part of the field visits for this audit.

Where operational and access conditions were favourable for harvest salvage opportunities were included as FMP amendments and AWS components. There was good coordination between MNR and AFP to perform salvage operations where feasible.

Forest Protection: There was a recent outbreak of jack pine budworm on the Sapawe Forest. MNR has led a program identifying stands for treatment. Treatment consists of aerial applications of biological control substances. AFP cooperated fully with MNR's program. Analyses completed by MNR using SFMM modelling showed that the expected impacts of the jack pine budworm's current defoliation of 7% of the conifer forest types on the Sapawe Forest were expected to be modest. The long term wood supply and forest cover targets can still be achieved at current levels of infestation.

Compensation for Withdrawals: Interviews with MNR and AFP staff and a review of Appendix G of the SFL confirmed that no withdrawals occurred during the audit term.

Periodic Review of Licensee's Performance: The IFA process serves as the mechanism for the periodic review. The last IFA was conducted in 2002 and evaluated forest management for the five year period of 1997-2002. The audit led to three recommendations (including an unnumbered recommendation to extend the SFL for a further five year term), ten suggestions and two best practices. An audit action plan was prepared and implemented by AFP and MNR.

The Sapawe Forest IFA Action Plan Status Report, dated September 2005, described implementation of the Action Plan. Actions associated with the recommendation for licence extension and Recommendation 1 were shown as completed and Recommendation 2 as ongoing. The audit team found that actions to address the recommendations were appropriate and were implemented effectively, as discussed below. The audit team also noted that the auditees took action to address the suggestions from the previous audit, even though they are not required to do so.

2002 IFA Licence Extension: The Sapawe Forest is being managed by the Company under the requirements of the Crown Forest Sustainability Act and the requirements of SFL #542411. The auditor recommends that the Sapawe SFL #542441 be extended for a further five-year term.

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[15] MNR. 1995. Forest Operations and Silviculture Manual. Queen's Printer for Canada. 34 pp. + Appendices.

[16] MNR. 2000. Scaling Manual. Queen's Printer for Canada. 79 pp. + Appendices.

The audit action plan tied licence extension to those aspects of completion and implementation of the audit action plan for which the Company was responsible. The licence was amended in 2006 and the term extended five years, to March 31, 2023.

2002 IFA Recommendation #1: Corporate MNR should review the implementation of the SGR/FOP system and either re-train District MNR and Company staff in its use or design an alternative system to "Forest Operations Prescriptions" for tracking the progress of silvicultural treatments. The Company and MNR District should design and implement a system of combining stands with similar future treatments to simplify record keeping.

The documentation requirements regarding Recommendation #1 were met for the Action Plan that was approved by MNR on September 2, 2003. All the action items were reported as being completed between 2003 and 2004.

MNR and AFP responded to the recommendation through the ongoing FMP training programs and revisions to the FMPM. This is consistent with the direction in the first part of the Recommendation. The current approach to SGR/FOPs through both the new FMPM (2004) and through the initiatives of the planning team in preparation of the 2005-10 FMP are more intuitive and less complex compared to the process examined in the 2002 IFA.

AFP has also expanded the use of a GIS in all phases of planning and reporting. This addresses the intent of the second part of the Recommendation, although the Company's Silviculture Information System is under development. It is the audit team's opinion that the latter part of the Recommendation is overly prescriptive. The GIS system will store silviculture treatments as separate layers allowing the creation of maps with varying levels of complexity depending upon the needs of specific applications. One theme may combine similar treatments as the auditor recommends, but the choice will depend on the needs of planners that will change over time. The advantage with GIS is that regardless of themes that are developed to convey information, the integrity of the underlying data will remain intact and its inherent complexity is no longer an issue.

2002 IFA Recommendation #2: The Company or the MNR (depending on which agency has responsibility) should inspect naturally abandoned roads until no longer required to do so.

AFP and MNR have cooperatively directed a significant amount of effort at addressing this recommendation. An overall strategy was developed with initial efforts focused on combining GIS roads data of the two parties to create a single roads dataset for the Sapawe Forest. Every road on the Forest was assigned to one of the parties for assessment, with an emphasis on water crossings. Both AFP and MNR have performed water crossing inventories on roads that were deemed driveable to ensure safety hazards were assessed. Further risk rating has been performed on non-driveable roads using a variety of data to identify potential environmental water crossing risks. Approximately half of these high risk crossings were assessed aerially. Since significant progress was made and implementation of the strategy will be ongoing, the intent of the recommendation was addressed.

Forest Renewal Trust Account: Analysis of the adequacy of the funds in the Renewal Trust Account to meet the renewal program was conducted, the most recent being for the 2007-08 contribution year. Adjustments were made to the renewal rate for conifer (excluding red pine, white pine and cedar) twice during the audit term. Contributions to the Account are based on the volume by species harvested from the management unit multiplied by the agreed-upon contribution rate. The annual minimum balance requirements of $632,000 were met on March 31 in four of the five years of the audit term (2005-06 had a shortfall of $12,584). However, the market value of the Account was significantly below the minimum balance amount for most of 2006-07. The lack of contributions to the Account was identified as an HPA during audit planning, with MNR expressing concern over reductions in the herbicide program and slash management program. The audit team noted a decline in the tending program during the latter part of the audit term and the use of lower application rates of herbicide (see Section 3.4.4). The audit team also commented on the slash management program and in particular the effectiveness of furrowing as a means of managing slash (see Section 3.4.2). Because the hiatus in contributions to the Account occurred late in the audit term the audit team does not know whether it will have a long term impact on the silviculture program, although the concerns expressed above demand close monitoring of the situation by MNR to ensure that silvicultural obligations are met.

Recommendation 10: MNR must verify that AFP is meeting its silvicultural obligations and take appropriate action, if warranted, to ensure adequate contributions are made by AFP to the Forest Renewal Trust Account for the Sapawe Forest.

Statements of Account activity are provided to MNR and the SFL holder by the Trustee and a full financial audit (Specified Procedures Review) is conducted periodically by KPMG, the most recent being for 2005/06. The KBM audit team examined a 30% sample of projects invoiced under the Forest Renewal Trust Account for the year 2005-06. The maps and associated records were consistent with the field work observed.

Silvicultural Standards: The Sapawe Forest has Class X, Y, and Z lands within the Licence Area and these lands are classified as follows:

- Class X refers to areas approved for harvest on or after April 1, 1995.
- Class Y refers to areas harvested prior to April 1, 1995 on which treatments were initiated using funds made available through the Special Purpose Account or the Forest Renewal Trust.
- Class Z lands are areas that were harvested prior to April 1, 1995 on which no treatments were initiated but on which a tending treatment may be required to bring the area to FTG status.

The 2002 AR describes Class X as the areas approved for harvest in 1995-1996 and 1996-1997. Recent analysis shows the following:

- approximately 5,500 ha are Class X lands, of which 18% of the total area was site prepared and aerial seeded to jack pine,
- 9% was aerial seeded to jack pine without site preparation,
- 28% was planted to conifer,
- 3% was scarified for natural conifer regeneration,
- 39% was left for natural regeneration to hardwood species, and
- 3% was not harvested.

FTG surveys began on the Class X lands in 2002-03 and are slated to continue over the next few years. A total of 349 ha are identified as Class Y lands, of which 110 ha (32%) was surveyed and declared FTG. Surveys on the remaining 239 ha began in 2002 and were scheduled for completion in 2003.

Class Z lands totalled 11,054 ha, most of which (approx. 7,000 ha) was declared FTG in 1997 by MNR. Over the past five years, 1,285 ha of Class Z lands were aerial sprayed, 1,471 ha were manual tended or thinned, and 105 ha were ground sprayed. Most of these treatments were conducted on areas that were previously declared FTG. Continued monitoring was recommended for this land class, with AFP completing both aerial and ground surveys.

MNR District submitted all of their digital silviculture records to AFP. Although the Year 10 AR notes that some X, Y, and Z classed lands are hard to locate, this appears to be a reporting and information retrieval problem rather than a lack of data. AFP is in the midst of developing a fully integrated silviculture information system as a module in its forest planning GIS. This system should be in place by the time the next IFA is conducted.

Aboriginal Opportunities: AFP provided harvesting opportunities on a portion of the Buchanan Forest Products Ltd. harvest allocation on the adjacent Dog River-Matawin Forest, where the Lac des Mille Lacs First Nation community is physically located, and also invited the band to bid on silvicultural work on the Sapawe Forest. A bid package for silvicultural work was delivered to the Band in 2004.

During interviews, First Nation representatives expressed satisfaction with AFP's youth training program for silvicultural workers. The Lac des Mille Lacs First Nation representative felt that this program played an important role in building capacity and was therefore the key to future economic opportunities.

Initiated in 2005, the youth training program is a five-year partnership project between AFP, Outland Reforestation and Lac des Mille Lacs First Nation. The program involves a seven week training course followed by on-the-job shadowing. The training includes tree planting, thinning and supervisory skills. As a result of this program, Lac des Mille Lacs First Nation workers were hired for tree planting and thinning on the Sapawe Forest in 2005 and 2006.

Lac des Mille Lacs First Nation representatives served on the planning team for the 2005-10 FMP and on the LCC.

Compliance Planning and Monitoring: AFP has primary responsibility for compliance planning and monitoring on the Sapawe Forest, with MNR jointly having responsibility for verification of non-compliance and spot checks. The 2005-10 FMP included a Five-Year Compliance Plan for the Sapawe Forest and outlined roles and responsibilities of various parties involved in operations and compliance. The overall trend was a general reduction in the types of non-compliances since the early years of compliance monitoring by the Company, although the total number of non-compliances appeared to vary little across the audit term.

Forestry Operations on Mining Claims: The audit team found no evidence of issues or of non-compliances related to forestry activities on mining claims.

4.0 Summary of Conclusions and Recommendations

The audit team concluded that, with the exceptions noted in the audit report, management of the Sapawe Forest was in compliance with legislation, regulations and policies and was effective during the term of the audit. The Sapawe Forest was also managed in general compliance with the terms of SFL held by Atikokan Forest Products Ltd. Payment of arrears to the Forestry Futures Trust Fund and for Crown charges are the subject of discussions between MNR and AFP. Forest sustainability is being achieved as assessed through the IFAPP.

Improvements are required in certain administrative areas of forest management to ensure that planning requirements are met and to increase the efficiency of management. Areas of forest management in most need of attention are associated with FTG survey methods and tending of competing hardwood vegetation. Table 10 provides a summary, by responsible party, of the number of recommendations and suggestions identified during the audit. A complete list is given in Table 11.

Table 10. Summary of Recommendations and Suggestions by Responsible Party.

	AFP	MNR	AFP and MNR	Total
Recommendations	6	2	3	11
Suggestions	3	2	1	6
Best Practices	0	0	1	1

Recommendation 11: Based on the outcome of this audit and performance with respect to its contractual obligations, the audit team recommends the Minister extend the term of the Sustainable Forest Licence for the Sapawe Forest held by Atikokan Forest Products Ltd.

Table 11. Summary of Recommendations, Suggestions and Best Practices.

Principle 1: Commitment

None.

Principle 2: Public Participation

Suggestions:

1. MNR should ensure that public consultation notices meet FMPM requirements.
2. MNR should consider retaining records of all meetings related to Aboriginal Peoples consultation.

Principle 3: Forest Management Planning

Suggestions:

3. AFP should consider updating the forest description with new data or data formats (e.g. digital NOEGTS) in the next FMP.
4. During preparation of the 2010 FMP, the planning team should:
    - a) Review and revise (if appropriate) natural forest succession rules for volume losses pre- and post-succession to minimize volume losses or gains as a result of succession;
    - b) Review and revise (if appropriate) forest renewal limits by proportion for the base model to reflect biological/ecologically based limitations. Limits should be expanded in the Proposed Management Strategy to include additional management decisions to balance the renewal program by treatment intensity if warranted; and
    - c) Review projected forest unit stability, wildlife habitat and old growth forest results in the Proposed Management Strategy and add constraints to enhance the achievement of desired levels (if warranted).
5. In the development of its Annual Compliance Schedule of Action, AFP should use a risk assessment approach for setting compliance priorities for each forest operation.

Principle 4: Plan Implementation

Recommendations:

1. AFP must ensure that the slash management program on the Sapawe Forest is silviculturally effective.
2. MNR and AFP must develop a training program that will lead to suitable prescriptions, mapping and operating practices for shallow site complexes on the Sapawe Forest.
3. AFP and MNR must review the tending program and herbicide application methods to improve the program effectiveness and to ensure it is meeting FMP objectives.
4. AFP must ensure that all aggregate pits comply with the requirements of the Aggregate Resources of Ontario Provincial Standards and that deficiencies of the types identified during the audit are corrected.
5. AFP must ensure that road approaches to water crossings are constructed to include erosion control and/or sediment control to protect water quality.
6. AFP must ensure that adequate cross drainages are installed during road construction.

Suggestion:

6. AFP should refine its prescriptions on some sites to capture site variability to better match treatments to variable site conditions within blocks.

Best Practice:

1. MNR and AFP for the historical white pine range study and the implementation of a white pine and red pine restoration program which is an important advance that can be built upon in future plans and can be emulated in other boreal transition forests within the Region.

Principle 5: System Support

Recommendation:

7. AFP must review its forest management records management system for the Sapawe Forest to ensure that data is secure and available for updating the silviculture record system under development.

Principle 6: Monitoring

Recommendation:

8. AFP must review its FTG methods and make improvements to the system for both updating the FRI and assessing silviculture effectiveness.

Continued on next page.

Table 11 continued.

Principle 7: Achievement of Management Objectives and Forest Sustainability
Recommendation: 9. MNR and APF must carefully evaluate forest composition objectives and forest unit classifications in the development of the next FMP to ensure that they can clearly communicate the desired forest conditions in ways that can be monitored over time.
Principle 8: Contractual Obligations
Recommendation: 10. MNR must verify that AFP is meeting its silvicultural obligations and take appropriate action, if warranted, to ensure adequate contributions are made by AFP to the Forest Renewal Trust Account for the Sapawe Forest.
Conclusion
Recommendation: 11. Based on the outcome of this audit and performance with respect to its contractual obligations, the audit team recommends the Minister extend the term of the Sustainable Forest Licence for the Sapawe Forest held by Atikokan Forest Products Ltd.

Appendix A

Comparison and Trend Analysis of Planned versus Actual Forest Operations Report

SAPAWE FOREST
ATIKOKAN FOREST PRODUCTS LIMITED

INDEPENDENT FOREST AUDIT
April 1, 2002 to March 31, 2007

COMPARISON and TREND ANALYSIS of PLANNED VERSUS ACTUAL FOREST OPERATIONS REPORT

Prepared by:
Seal:
Shannon Rawn, R.P.F.

Date: Sept. 13, 2007

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Appendix 1: Trend Analysis Table 5

1.0 Introduction

This comparison and trend analysis report is prepared in accordance with the requirements of Appendix C of the Independent Forest Audit Process and Protocol (IFAPP, OMNR 2007).

The period of the Independent Forest Audit (IFA) is April 1, 2002 to March 31, 2007. The purpose of this report is to evaluate various primary management components on the Sapawe Forest, to compare planned versus actual levels of forest operations, and to discuss trends as they pertain to the management of the forest. The terms being reviewed include the 1995-2000 Timber Management Plan (TMP), 2000-2005 Forest Management Plans (FMP), and the first year of the 2005-2010 FMP.

The Sapawe Forest is licensed to Atikokan Forest Products Ltd. (AFP) under Sustainable Forest License (SFL) No. 542441. The license corresponded with the transfer of the Forest from a Crown management unit to SFL in 1998. Therefore, preparation of the 1995-2000 TMP and subsequent implementation of some of the operations for that term were the responsibility of MNR. Preparation and implementation of the 2000-2005 FMP and 2005-2010 FMP were AFP's responsibility.

The Sapawe Forest is located within MNR's Fort Frances District, in the Northwest Region, and is administered from its Atikokan Area office. AFP administers the forest from both the Sapawe field office and the Buchanan Forest Products Ltd. head office in Thunder Bay.

As per the IFAPP, the Report of Past Forest Operations (RPFOs) for the terms under review were used to aid in the completion of this report. The applicable Annual Reports (ARs), FMPs, TMP, Forest Management Planning Manuals (FMPM), and Timber Management Planning Manual (TMPM) were also used. The trend analysis tables required by the IFAPP are included in Appendix 1.

It should be noted that the 2000 and 2005 FMP's were developed under the 1995 FRI and the 1990 and 1995 TMP's were developed under the 1983 FRI.

2.0 Summary of Total Area under Management

This section presents the trend in magnitude and composition of the Crown managed forest for the period under review (Table 1 and Figure 1).

The overall trend for the Sapawe forest, between 1995 and 2005, showed a decrease in area under management. This is primarily resulting from provincial land use planning initiatives. The total forested land was significantly reduced during the preparation of the 2000 FMP as a result of the Lands for Life process in 1999. The Land Use Strategy identified 13,448.6 ha of forest on the Sapawe Forest which resulted in 8,725.8 ha being removed from the total forested land. Of the total areas identified, 26% was formed into new parks, 39% into conservation areas, and 35% into enhanced management areas.

Land Type		*Area (ha)*		
		Past Plans		Current
	Plan Term	1995-2000	2000-2005	2005
Non-Forested		1,784	-	569
Other Land		-	2,720	2,893
Forested				
Non-productive		12,681	13,879	13,907
Productive		209,224	198,080	198,896
Protection		3,432	1,927	1,951
Production Forest				
B&S / NSR		24,050	4,976	4,685
Depleted			12,443	20,573
Working Group				
Pw		2,314	1,490	1,466
Pr		1,191	3,402	3,161
Pj		42,145	53,593	51,326
S		57,430	47,208	46,340
B		19,368	5,418	4,719
OC		1,192	240	224
Ce		602	5,415	5,343
He				
Po		37,939	41,090	38,305
Bw		18,915	20,567	20,317
Mh		-	-	-
H		646	311	486
Total Production Forest		205,792	196,153	196,945
Total Forested Land		221,905	211,959	212,803

Table 1. Trends in magnitude and composition of the Crown managed forest.

There was a slight increase in the total forested land from the 2000-2005 to the 2005-2010 term due to a coding error involving islands, whereby some islands in the park were included in the Crown managed area. This has since been corrected as part of the approved planning inventory for the 201020 FMP and there were no impacts to the park.

Minor differences in total forested land and a number of the working group shifts noted between the 1995 TMP and the 2000 FMP are a result different FRI. The 1990 and 1995 TMP's were developed under the older 1983 FRI and the 2000 and 2005 FMP's were developed under the newer 1995 FRI. Figure 1, the graphical presentation of Table 1, shows that the most significant changes between the 1995 and 2000 terms occurred in the Bf, Sp, and Pj working groups, as well as the barren and scattered category. An earlier spruce budworm epidemic in the late 1980'/early 1990's resulted in collapse of the Bf working group by the time the 1995 FRI was taken. Bf mortality resulted in area shifting to other WG's. Many areas in B&S/NSR category where regenerated by MNR and then put back into the inventory for 2000 FMP resulting in a noticeable increase in both Pj and Pr working groups. The 1995 FRI resulting in more Ce working group being identified however it comprises a small proportion of the Forest. The trends between 2000 FMP and the 2005 FMP are relatively stable and minor in nature. Most are due to planned depletions.

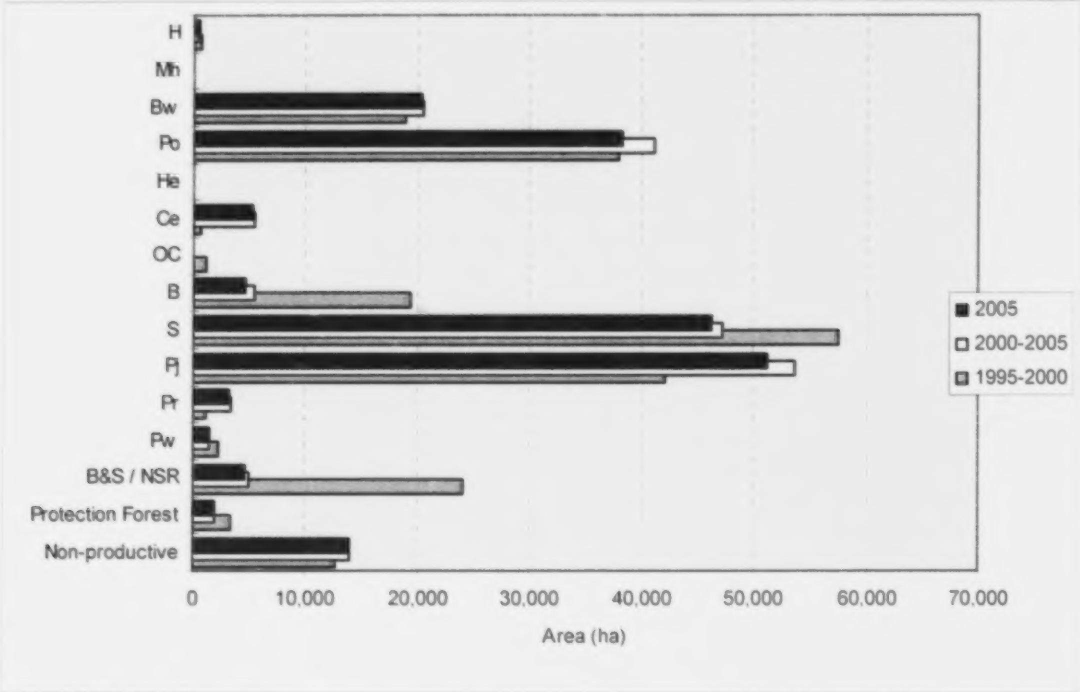


Figure 1. Graphical presentation of Table 1, above.

The differences in Table 1 as a result of inventory changes and past harvest and renewal practices are minor. When the forest types in Table 1 are grouped into hardwood dominated versus conifer dominated, Figure A shows only slight changes across four plan terms. All the observed levels are consistent with intended biodiversity objectives in previous plans and trend analysis. Section 6.0 discusses the diversity of forest types in more detail.

Figure A illustrates the relative stability of the ratio between conifer and hardwood working groups. This is consistent with the intent of the biodiversity objectives from the three FMPs under review.

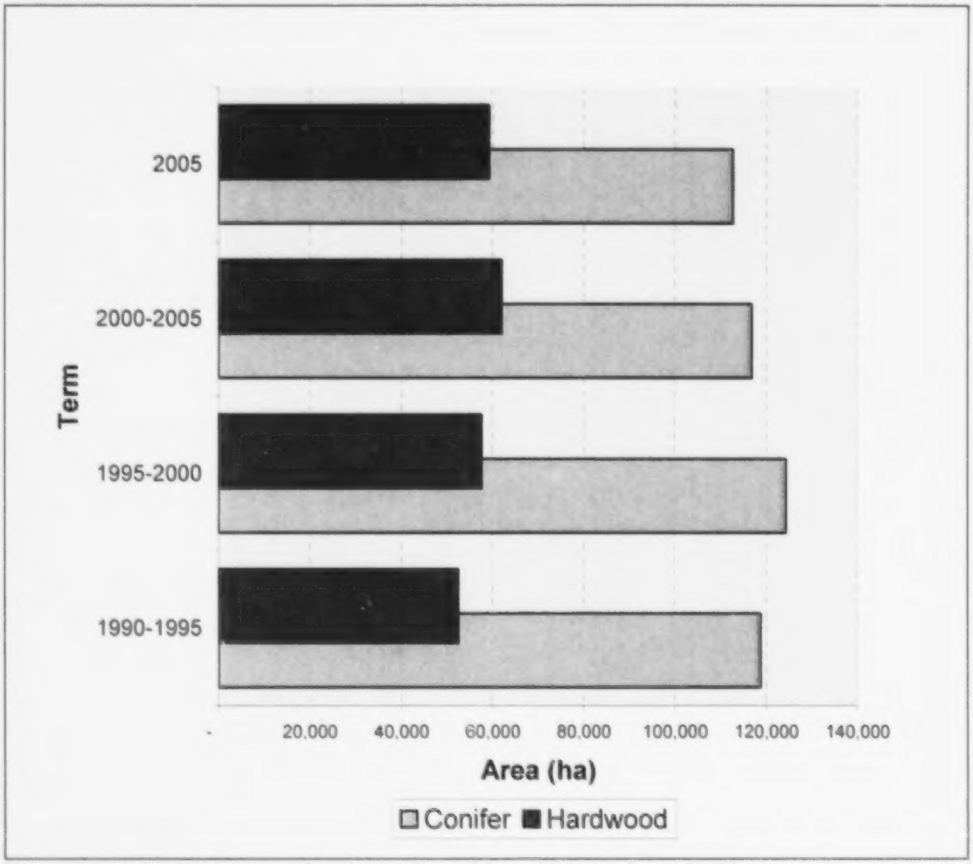


Figure A. Conifer versus hardwood working groups since 1990.

3.0 Description of Forest Units

This section describes the differences transition between forest unit definitions for the plans under review. This facilitates comparison between the three classification systems when analyzing trend analysis tables. Table 2 identifies the forest units used by the three plans under review. There were twelve in the 1995-2000 TMP, and thirteen in the two subsequent FMPs. It is important to note that required reporting in the trend analysis tables is based on categorization by forest unit definitions. There are differences between the three systems used to categories forest units and they do not permit direct comparisons when analyzing trends in the tables.

The most notable differences occur in the 1995 TMP were Working Group (WG) definitions are used to describe forest units. Working group is assigned to a stand based on the species having the largest basal area within the stand. In the case of OC and OH, they are combined working groups where several species basal areas are totaled together and their total percentage must be equal or greater than that of the individual associated species composition. In some cases site class was used to further categorize forest units by productivity. This approach was simple to use with the area based forest regulation model, MADCALC tool which enabled managers to perform "what if scenarios" and quickly get a feel for the potential impact of their decisions on the forest, one forest unit at a time.

The 2000 FMP represented a major change in the region for how forest units where approached. The 1995 FRI on the Sapawe Forest was one of the first FRI produced in the Northwest Region using the Northwest Ontario Forest Ecosystem Classification system. This inventory enabled the earliest use of primary ecosites in defining forest units. During plan development there was a resurgence of Regional interest by OMNR towards a set of regional forest unit definitions to take advantage of the then new direction in the Northwest Region Silviculture Guides, new ecosite inventories, and the new area based regulation model, SFMM (Sustainable Management Model). The linear program, SFMM, made it possible to manage multiple forest units together and place constraints on silviculture and direct stand succession enabling managers to take advantage of managing mixed species forest units. Consequently, Table 2 shows a heavy use of SQL queries to separate forest units based on mixed species composition. Ecosites where simply used to help separate organic soils to more accurately identify spruce lowlands.

From 2000-2005 plan to 2005-2010 plan, the biggest change was that the red pine dominant forest unit was added and the balsam fir mixedwood forest unit was eliminated. Also, leading into the 2005 FMP, many of the forest units were redefined through slight adjustments in the query definitions using species composition.

The overall trend from the 1995 TMP to the 2005 FMP showed a more complex query for each forest unit, with new and improved FRI information.

Table 2. Description of Forest Units

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
PrDom	Red Pine Dominant Forest	Conifer	Pr		Clearcut	Pr >= 50%	
PwMx	White Pine Mixedwood	Conifer	Pw		Shelterwood	Pw >= 0.3	
PrMx	Red Pine Mixedwood	Conifer	Pr		Clearcut	Pr + Pw >= 0.3	Stands with greater than or equal to 30% Red and White Pine but white pine less than 30%
SbLow	Lowland Black Spruce	Conifer	Spruce all	Ecosites 34 to 37	Clearcut	Wg=Sb and ES 34, 35, 36, or 37 and Pj <= 10%, Po <= 10%, Bf <= 10%, Bw <= 10%	These sites are lowland, wet areas
SbUpl	Spruce Upland	Conifer	Spruce all		Clearcut	Sb + Sw >= 70%; or Sb+Sw+Pj+Pr = 70%; or Wg = "Sb" and Po+Bw <= 20%	These stands are spruce dominated mixed conifer stands where there is very little poplar
PjDom	Jack pine Pure	Conifer	Pj		Clearcut	Pj >= 70% and/or Wg = Pj and/or Sb+Sw+Pj+ Pr >= 70% and Po+Bw <= 20%	These stands are jack pine dominated mixed conifer stands where there is very little poplar
PoDom	Poplar Pure	Intolerant hardwood	Po		Clearcut	Po >= 50%	
BwDom	White Birch Pure	Intolerant hardwood	Bw		Clearcut	Bw >= 50%	
OC	Other Conifer	Conifer	Ce/La		Clearcut	Ce + La > 50% or WG = Ce or WG = La	This forest unit is combined of both lowland Cedar and upland cedar with a small amount of larch stands
OH	Other Hardwood	Tolerant hardwood	Red maple		Clearcut	Lh + Uh + Mh > 30%	These stands are made up of maple with only a few black ash stands.

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
ConMx	Conifer Mixedwood	Conifer	Spruce all		Clearcut	Sb+Sw+Pj+Pr+Pw >= 50% or Sb+Sw+Pj+Pr+Pw+Po >= 50% and Po <= 30%	These stands are the spruce and pine working groups which have less than 30% poplar
HrdMx	Hardwood Mixedwood	Intolerant hardwood	Po		Clearcut	Po+Bw+Mh+Uh+Lh >=50% or Po >= 40%	
MxWd	Mixedwood	Mixed wood	Pj		Clearcut	Sb+Sw+Pj+Pw+Bf>= 10%	These stands would be good candidates for conversion projects to be converted to ConMx or HrdMx stands
PwMx	White Pine Mixedwood	Conifer	White Pine		Shelterwood	Pw>=0.3	Stands with white pine greater than or equal to 30% composition where there will be shelterwood harvest methods.
PrMx	Red Pine Mixedwood	Conifer	Red Pine		Clearcut	Pr>=0.4 or Pw+Pr>=0.4	Stands with greater than or equal to 40% Red and White Pine but white pine less than 30%.
SbLow	Spruce Lowland	Conifer	Spruce All	Ecosites #34, 35, 36, 37	Clearcut	Sb>=0.6 and (Udfl='34'or Udfl='35' or Udfl='36' or Udfl='37')	These sites are lowland wet areas.
SbUpl	Spruce Upland	Conifer	Spruce All		Clearcut	Sb+Sw>=0.7 and Po<=0.1 or (Sb+Sw+Pj>=0.7 and WG='Sb' and Po<=0.1)	These stands are spruce dominated mixed conifer stands where there is very little poplar.
PjPur	Jack Pine Pure	Conifer	Jack Pine		Clearcut	Pj>=0.7 and Po<=0.1 or (Pj+Sb+Pr+Pw>=0.7 and WG='Pj' and Po<0.1)	These stands are jack pine dominated mixed conifer stands where there is very little poplar.

Forest Unit		**Forest Type**	**Main Working Group**	**Site Type(s)**	**Silvicultural System**	**FRI Parameters & Criteria**	**Additional Information**
Code	**Name**						
PoPur	Poplar Pure	Intolerant Hardwood	Poplar		Clearcut	Po>=0.6	Poplar dominated stands which could be left for natural regeneration with the poplar returning
BwPur	White Birch Pure	Intolerant Hardwood	White Birch		Clearcut	Bw>=0.7	White birch dominated stands which would not be harvested unless the birch could be utilized.
BfMx	Balsam Fir Mixwood	Conifer	Balsam Fir		Clearcut	Bf>=0.4	Balsam Fir dominated stands which would be ideal for conversion programs.
OC	Other Conifer	Conifer	Cedar		Clearcut	Ce+La>=0.5 or (WG='Ce' or WG='La')	This forest unit is combined of both lowland Cedar and upland cedar with a small amount of larch stands.
OH	Other Hardwood	Tolerant Hardwood	Red Maple		Clearcut	Lh+Uh+Mh>0.3	These stands are made up of maple with only a few black ash stands.
ConMx	Conifer Mixwood	Conifer	Spruce All		Clearcut	Sb+Sw+Pj+Pr+Pw>=0.5 and Po<=0.5	These stands are the spruce and pine working groups which have more than 10% poplar.
HrdMx	Hardwood Mixwood	Intolerant Hardwood	Poplar		Clearcut	Po+Bw>=0.6	These are stands that have less than 60% of either Po or Bw but combined is over 60%.
MxWd	Mixedwood	Mixed Wood	Jack Pine		Clearcut	Sb+Sw+Pj+Pr+Pw+Bf>=0.1	These stands would be good candidates for conversion projects to be converted to conmx or hrdmx stands.

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
PW	White Pine	Conifer	White Pine		Shelterwood	White Pine working group stands	Stands which have primarily white pine as the dominant working group species
PR	Red Pine	Conifer	Red Pine		Clearcut	Red Pine working group stands	Stands where Red Pine is the dominant species and working group.
PJN	Jackpine	Conifer	Jackpine	Site Class X,1,2,3	Clearcut	Jackpine working group stands.	Stands where Jackpine is the dominant species and working group. Deep upland soils
PJP-PFR	Jackpine	Conifer	Jackpine	Shallow sites -PFR	Clearcut	Jackpine working group stands	Stands which Jackpine is the dominant species and working group and on shallow soils or fragile sites.
SPU	Spruce Upland	Conifer	SpruceAll	SiteClass X,1	Clearcut	Spruce working group stands	Stands which are on deep upland soils with SB and Sw as working group.
SPP-PFR	Spruce Upland	Conifer	SpruceAll	Site ClassX,1	Clearcut	Spruce working group stands	Stands which are on shallow soils or fragile sites with Sb and Sw a working group
SPL	Spruce Lowland	Conifer	SpruceAll	SiteClass 2,3	Clearcut	Spruce working group stands	Lowland spruce areas
PO	Poplar	Intolerant Hardwood	Poplar		Clearcut	Poplar working group stands	Stands which have poplar as the working group and dominant species
Bf	Balsam Fir	Conifer	Balsam Fir		Clearcut	Balsam working group stands	Stands which balsam is the main species and working group. Targeted for conversion to another future forest unit.

Forest Unit		Forest Type	Main Working Group	Site Type(s)	Silvicultural System	FRI Parameters & Criteria	Additional Information
Code	Name						
OH	Other Hardwoods	Tolerant Hardwood	Red Maple,Ash		Clearcut	Red Maple and Ash working groups	Stands primarily composed of Maple and Ash. These stands will be converted to a more commercially viable species.
BW	White Birch	Intolerant Hardwood	White Birch		Clearcut	White Birch working groups	Stands where White Birch is the dominant species and working group. These stands will also be converted to a more commercially viable species.
Rec. Reserves	Recreational Reserves	Working Group Dependant	Working Group Dependant		Working Group Dependant	Stands which occur in close proximity of prime lake trout and high use lakes	Stands which are in close proximity of regular allocations will be allocated.

4.0 Summary of Planned and Actual Harvest Volumes

This section summarizes the trend in planned and actual harvest volumes since the 1995-2000 TMP (Tables 3a and 3b). The volumes are annualized for the terms identified.

Species	*Volume in '000's cubic metres*		
	Past Plans		Current
	1995-2000	2000-2005	2005-2010
Pw	9.0	2.1	3.3
Pr	1.4	6.3	0.7
Pj	78.2	82.0	80.2
Sp	131.1	58.0	71.8
Bf	22.1	8.2	12.7
Ce	1.9	6.4	2.5
Oc	0.1	0.3	0.8
H	5.9	-	4.5
Bw	34.6	23.2	35.4
Po	68.1	57.1	44.0
Total Planned Volumes	352.4	243.6	255.9

Table 3a. Average planned annual harvest volumes, annualized for the indicated 5 year period.

Species	*Volume in '000's cubic metres*		
	Past Plans		Current
	1995-2000	2000-2005	2005-2010
Pw	11.1	0.2	0.3
Pr	1.5	7.7	0.2
Pj	41.8	75.3	67.4
Sp	63.8	47.4	75.6
Bf	19.3	4.4	4.8
Ce		0.2	
Oc	1.2	0.0	
H	1.7	-	
Bw	11.1	0.3	0.6
Po	20.0	42.9	32.5
Total Actual Volumes	171.5	178.3	181.4

Table 3b. Actual harvest volumes, annualized for the indicated 5 year period. Note that the 2005-2010 term is based on one year of data (2005/2006).

These tables are illustrated in Figure 3.

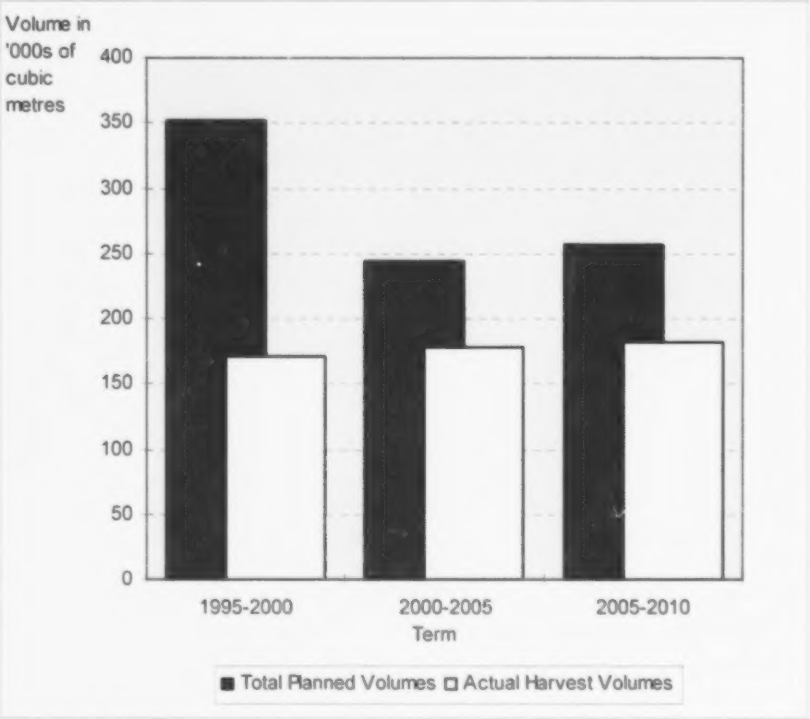


Figure 3. Graphical representation of Tables 3a and 3b.

Information for the current plan, 2005-2025 FMP is based on data from only one annual report (2005/06) which limits the strength of the trend for the 2005-2025 FMP. Given the limited strength of the trend for the 2005 FMP, data from the earlier 1990-1995 term was available from the previous audit period to help with the analysis in Table A. Table A shows the annual harvest volume significantly increased since 1990 and became relatively constant from 1995 to 2006 with only a slight increase (181,400/171,500= *6% gain*) in volume during this time. The 2005/06 annual report suggests similar levels for the 2005-2010 term are attainable provided there are strong markets for the various species. After AFP purchased the mill from Domtar in the early 1980's and in 1998 acquired the Sapawe Forest (SFL) resulted in an increased demand for fibre resulting in the increased volumes harvested.

Table A. Actual, annualized harvest volume as a percentage of planned since the 1990-1995 term.

Term	Planned	Actual	Actual (% of Planned)
1990-1995	393,089	99,952	25
1995-2000	352,400	171,500	48
2000-2005	243,600	178,300	73
2005-2006	255,900	181,400	71

The three species that contribute the most to the planned harvest volume are jack pine, spruce, and poplar (approximately 55% of the total volume). These three species also experienced increases in their respective percentages of actual to planned harvest volume from the 1995-2000 term to the 2000-2005 term. This trend continues into the 2005-2006 term for spruce, but poplar stabilizes and jack pine decreases a small amount (Table B).

Table B. Actual, annualized harvest volume for jack pine, spruce, and poplar as a percentage of planned since the 1995-2000 term.

Term	Actual (% of Planned)		
	Jack pine	Spruce	Poplar
1995-2000	54	49	29
2000-2005	92	82	75
2005-2006	84	105	74

Actual volume is relative to the actual area harvested. When considering the actual harvest area achievement, volume utilization has been improved between the three terms. Table C reflects these prorated volume levels. These were calculated by multiplying the planned volume with the actual harvest area achievement, thus finding the expected, "planned" volume from the area harvested.

Table C prorated volume levels and achievement

Term	Actual Harvest Area Percent	Planned Volumes (Annualized)	Actual Volumes (Annualized)	Actual Harvest Area Percent (Prorated)
1995-2000	69	243,156	171,500	71
2000-2005	78	190,008	178,300	94
2005-2006	87	222,633	181,400	81

The planned volume per hectare for each of the periods continues to decline (see Table D). This is attributable to continual improvements in operational planning, a combination of both cruising and monitoring scale returns are credited with this accuracy. The slightly lower actual volume per hectare for the 2005-2006 period can be a result of harvesting some lower stocked areas such as blow down.

Table D. Comparison of Average volume per hectare for planned versus actual.

Term	Planned			Actual			Difference
	Volume	Area	M^3/yr	Volume	Area	M^3/yr	M^3/yr
1995-2000	352,400	2289	153	171,500	1572	109	-44
2000-2005	243,600	2052	119	178,300	1603	111	-8
2005-2006	255,900	2195	116	181,400	1918	95	-21

The overall trend from 1995 to 2006 shows that harvest volume forecasts with the plans are becoming more accurate, and therefore, plan sustainability in the form of volume achievement more attainable.

5.0 Summary of Planned and Actual Depletion Area

This section summarizes the trend in planned and actual harvest areas, and any reported natural disturbance (Table 4a-c). All figures are annualized, and the 2005-2010 term is based on only one year of data (2005/06). Bypass and reserves were not consistently reported between all terms, and therefore are omitted. Table E shows the continuous improvement between area planned for harvest and the actual area harvested. Rational for the improvements are described below.

Planned harvest area decreased between 1995 and 2000 as a result of the following: changing of the allowable harvest area tool from MAD to SFMM, the use of the new 1995 FRI, new objective constraints (i.e. old growth and wildlife habitat targets), and the Ontario Living Legacy park expansion.

During the 1995-2000 term, the logistics to develop the planned amount of roads within a 5 year period with the added difficulty of road construction due to topography, access to gravel proved to be a challenge with the resources available. At the time, Crown operators where dependent on OMNR's NORT funding to construct primary and secondary roads. The NORT roads funding was at the end of the program with little funds available given the majority of funds where directed to FMA's. As a result, access to remote areas where not completed and the blocks were not harvested which contributed to the underachievement of harvest area for the term.

For the 2000-2005 term, bypass of non-merchantable (mainly small Sb) and non-marketable timber (mainly Cedar and White Birch), additional tourism concerns (visual buffers, line of sight buffers, etc.) and inoperable ground (areas too rocky, too wet, and too steep) had a compounding negative effect on harvest level achievement for this period. Within the Forest Management Plan, an AHA of Cedar was allocated in a number of Cedar dominated blocks due to public comments which requested access to Cedar. Unfortunately, due to a lack of Cedar markets during the term of the plan, these blocks were not harvested.

For the 2005-2010 period, with only one year of depletions, it is not practical to analyze any trends, however, it should be noted that during this year harvesting of Po was curtailed as a result of market conditions. Furthermore, Fibratech Manufacturing Inc. has changed is procurement process at the mill and receives sawdust and shavings instead of roundwood. As a result, the company no longer harvests its own timber, which it had an Overlapping Resource Licence. In lieu of this, Fibratech receives sawdust and shavings from the Buchanan Group of Companies sawmills, including conifer from the AFP mill complex. The company has made a business to business agreement with Weyerhauser to utilize Po and trade for conifer. This agreement has allowed the company to utilize the poplar but, given the recent mill closures, poor market conditions for fine paper and currency exchange, it is unknown how long it will last.

Within the 2000-2020 Forest Management Plan, there were a number of Cedar dominated harvest blocks planned to fill the AHA for the OC forest unit. Due to a lack of markets through the implementation of this forest management plan, these blocks were not depleted, but were available for any interested groups. When removing the OC forest unit from the assessment of achievement, the results improved from 78 to 82% as reflected in Table F.

Table E. Percentage of actual to planned harvest area for the three terms under review.

Term	Actual (% of Planned)
1995-2000	69
2000-2005	78
2005-2006	87

Table F. Comparison of harvest achievement by forest type between OC and all other Forest Units for the 2000-2005 FMP term.

	Forest Type	
2000-2005 FMP	OC	All other Forest Units
Projected (ha)	732	9531
Planned (ha)	512	9749
Actual (ha)	48	7972
Proportion of Actual to planned %	9	82

The overall trend from 1995 to 2006 shows an increase in the utilization of the planned harvest areas. This is mainly due to more accurate operational planning, and more technical tools available for analysis of the forest.

Figure 4 shows a consistent loss occurring due to natural disturbances. The company has recently initiated salvage operations and plans to continue an aggressive salvage program where ever viable stands are damaged.

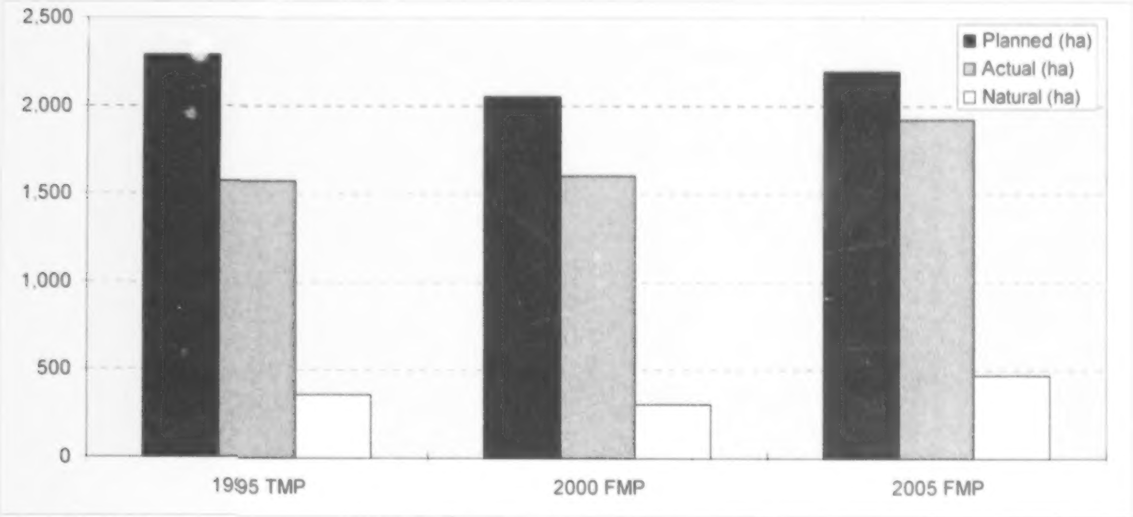


Figure 4. Planned versus actual harvest area, plus natural depletion (graphical presentation of Tables 4a-c)

	Harvest			Reserves			Fire		Insects		Other		Total		
Forest Unit	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
PrDom	-	-											-	-	-
PwMx	27	11											27	11	-
PrMx	12	12	4										12	12	4
SbLow	70	70	38										70	70	38
SbUpl	170	168	150										170	168	150
PjDom	499	499	366										499	499	366
PoDom	271	271	261										271	271	261
BwDom	192	192	38										192	192	38
OC	10	10	1										10	10	1
OH	-	-											-	-	-
ConMx	649	649	841									297	649	649	1,137
HrdMx	251	251	190									176	251	251	366
MxWd	119	62	30										119	62	30
Total	2,270	2,195	1,918	-	-	-	-	-	-	-	-	472	2,270	2,195	2,390

Figure 4a. Summary report of depletion area for the 2005 FMP (actual figures are based on 2005/2006 AR).

	Harvest			Reserves			Fire		Insects		Other		Total		
Forest Unit	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
BfMx	50	83	58							0		8	50	83	67
BwPur	0	7	2							0		1	0	7	2
ConMx	430	432	356							2		68	430	432	426
HrdMx	412	414	324							2		38	412	414	364
MxWd	225	224	163							0		14	225	224	177
OC	146	102	10							5		27	146	102	42
OH	2	3	2							0		4	2	3	6
PjPur	450	452	420							12		88	450	452	520
PoPur	108	107	94							0		10	108	107	104
PrMx	25	25	27							0		6	25	25	33
PwMx	5	4	4							0		0	5	4	4
SbLow	50	49	32							0		6	50	49	39
SbUpl	150	150	113							8		7	150	150	128
Total	2,053	2,052	1,603	0	0	0	0	0	0	29	0	277	2,053	2,052	1,910

Figure 4b. Summary report of depletion area for the 2000 FMP.

	Harvest			Reserves			Fire		Insects		Other		Total		
Forest Unit	Available Harvest Area (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Actual (ha)	Projected (ha)	Planned (ha)	Actual (ha)
BF	96	96	55		19			87					96	115	143
PJN	404	404	369		61			48					404	465	417
PJP	193	193	142		64			-					193	257	142
PR	-	-	2		-			-					-	-	2
PW	22	22	15		-			0					22	22	15
RES	2	2	0		97			-					2	99	0
SPL	88	88	48		5			23					88	93	71
SPP	91	91	60		33			-					91	124	60
SPU	813	813	482		109			136					813	922	619
OC	1	1	2		1			0					1	2	2
BW	91	91	48		10			41					91	101	89
PO	490	487	349		112			27					490	599	376
OH	1	1	-		-			1					1	1	1
Total	2,292	2,289	1,572	-	511	-	-	363	-	-	-	-	2,292	2,800	1,936

Figure 4c. Summary report of depletion area for the 1995 TMP.

6.0 Summary of Managed Productive Forest by Forest Unit

This section addresses changes in forest condition, as defined by the forest units described in Section 3.0, over time.

Table 5 (Appendix 1) presents the age class distribution by forest unit of the Crown managed productive forest for the three terms under review. To assist in the analysis of this indicator, the forest units of the three plans under review are grouped into relatively similar typed names. It must be recognized that for each plan, the forest unit definition are sometime significantly different, thus making comparison between plans less relevant. The change in area over time is then listed within the similar types. The area used in the discussion is the available production forest area.

White Pine

Plan	Code	Area (ha)
1995-2000	PW	2,314
2000-2005	PwMx	2,216
2005-2010	PwMx	2,513

This forest unit describes a unique forest type that represents a significant aspect of biodiversity. A slight increase of 9% occurred. This is partly due to the regeneration efforts over the period under review, and partly due to the change in forest unit definition from 1995-2000 to 2005-2010. The increase supports the white pine objectives from the FMPs under review.

Red Pine

Plan	Code	Area (ha)
1995-2000	PR	1,893
2000-2005	PrMx	3,726
2005-2010	PrMx and PrDom	5,251

While limited in size, this forest unit describes a valuable forest type in terms of future wood supply and biodiversity. There was a significant increase from 1995 to 2000 as a result of reclassification of B&S/NSR and new typing in the 1995 FRI used in the 2000 FMP. The increase supports the Red pine objectives from the FMPs under review. During these periods, the definition changed from WG, to 40% species component and then lastly down to 30%.

Spruce

Plan	Code	Area (ha)
1995-2000	SPU+ SPP+SPL	67,806
2000-2005	SbLow and SbUpl	35,011
2005-2010	SbLow and SpUpl	29,975

The majority of the reduction in spruce area in the 2000-2005 is attributed to the change from WG to forest unit definitions described in Section 3 creating a relatively pure spruce forest unit and removing the mixed stands into mixed forest units. Also, the 2005-2010 forest unit definition is more limiting and results in a further shift from SpUp into ConMx. The objectives from the 2000-2005 FMP projected a slight decrease in the SbUpl forest unit over time. The working group trends shown in Section 2 (Table 1) suggest that the spruce WG initially decreased but has remained constant for the last two terms corroborating that shifts are mostly due to forest unit definitions.

Jack Pine

Plan	Code	Area (ha)
1995-2000	PJN+PJP	46,493
2000-2005	PjPur	34,331
2005-2010	PjDom	40,581

Jack Pine forest units decreased as a result of the shift from WG definition in 1995 to the creation of a more pure pine forest unit in 2000 as discussed in Section 3. The increase from 2000-2005 to 2005-2010 is significant and was a result of accepting an additional 10% more poplar content. Table 1 shows an increase by 22% from 1995-2000 to 2005-2010 and is attributed to reclassification of the B&S/NSR of the day and the successful implementation of the previous FMP's objectives and strategies to increase jack pine on the forest.

Poplar

Plan	Code	Area (ha)
1995-2000	PO	43,109
2000-2005	PoPur	14,713
2005-2010	PoDom	25,586

Much of the 1995-2000 to 2000-2005 decrease is due to the shift from WG to the creation of a relatively pure poplar (60% poplar content) forest unit (see Table 2). The majority of the area was reclassified into other mixedwood forest units. Most of the increase from 2000-2005 to 2005-2010 is due to relaxing the poplar content down to 50% content. The objectives from the 2000-2005 FMP projected a slight increase in the PoPur forest unit over time.

White Birch

Plan	Code	Area (ha)
1995-2000	BW	21,932
2000-2005	BwPur	3,972
2005-2010	BwDom	11,390

Similar to poplar, much of the 1995-2000 to 2000-2005 decrease is due to the shift from WG to the creation of a relatively pure birch (70% birch content) forest unit (see Table 2). The majority of the area was reclassified into other mixedwood forest units. Most of the increase from 2000-2005 to 2005-2010 is due to relaxing the birch content down to 50% content.

Conifer Mixedwood

Plan	Code	Area (ha)
1995-2000	N/A	
2000-2005	ConMx	41,633
2005-2010	ConMx	56,101

This mixed conifer forest unit was introduced in the 2000-2005 FMP and resulted in a large area being removed from other conifer forest units, primarily the spruce and pine WG's. Further refinement was done in the 2005-2010 FMP that resulted in a further increase in this unit from SpUp mentioned previously. This new forest unit allowed more detailed projections and prescriptions.

Hardwood Mixedwood

Plan	Code	Area (ha)
1995-2000	N/A	
2000-2005	HrdMx	27,862
2005-2010	HrdMx	15,011

This mixed hardwood forest unit was introduced in the 2000-2005 FMP and was created primarily from the Po and Bw WG's. A refinement was done to the forest unit definitions in the 2005-2010 FMP to both the PoDom and BwDom that relaxed their minimum species component from 60% and 70% respectively both down to 50%. The increase to these pure forest units resulted in a 46% drop in 2005-2010 HrdMx levels. The average balsam fir and black spruce content within the HrdMx FU is reported to be 25% in the 2005-2010 FMP. The objectives from the 2000-2005 FMP projected a decrease in the HrdMx forest unit over time.

Mixedwood

Plan	Code	Area (ha)
1995-2000	N/A	
2000-2005	MxWd	21,644
2005-2010	MxWd	3,720

This forest unit is one of the last in the sort list and therefore includes stands that are not easily classified by the other forest unit definitions. According to the 2005-2010 FMP, the averages stand composition of the MxWd forest unit within the Crown managed productive forest is dominated by balsam fir. Due to the improved precision of the other forest unit definitions, and the fact that balsam fir has been declining on the forest, the area of MxWd forest unit is decreasing. Its use will be re-evaluated during production of the next FMP. Both the 2000-2005 and 2005-2010 FMP's objectives projected a decrease in the abundance of this forest unit.

Balsam Fir

Plan	Code	Area (ha)
1995-2000	BF	19,857
2000-2005	BfMx	4,179
2005-2010	N/A	

Balsam fir no longer has a specific forest unit in the 2005-2010 FMP due to its greatly reduced occurrence on the forest. Table 1 further illustrates this fact. The decline from 1995-2000 to 2000-2005 is directly related to a budworm infestation that occurred on the unit.

Other Conifer

Plan	Code	Area (ha)
1995-2000	OC	1,808
2000-2005	OC	6,116
2005-2010	OC	6,282

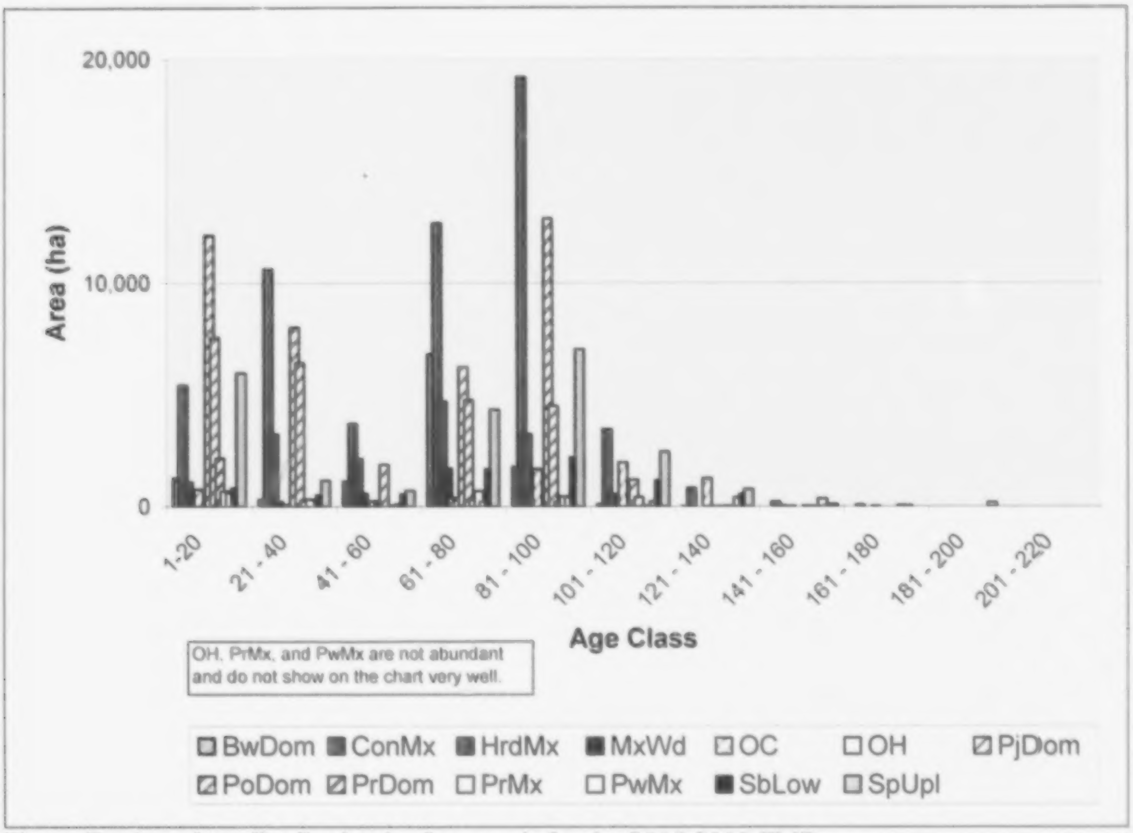
In 1995, this forest unit was limited on the forest and was a combined working group of cedar and larch stands. These stands contained minor amounts of black spruce. The shift from WG to mixed species forest units discussed in Section 3, resulted in the greater acceptance of up to 40% black spruce working group stands with a significant component of cedar and larch. The increase from 1995 to 2000 was partially due to the development of the new FRI in 1995.

Other Hardwood

Plan	Code	Area (ha)
1995-2000	MR	646
2000-2005	OH	748
2005-2010	OH	535

This minor forest unit is monitored due to the rare tree species of black ash and red maple that it represents. These species comprise the majority of the average stand composition, with significant amounts of white birch and poplar. The slight decrease is a result of harvesting the marketable species and leaving the unmarketable species as residuals or bypass.

Figures B, C, and D illustrate the area by age class of the forest units for the 2005-2010, 2000-2005, and 1995-2000 FMP's respectively. Some forest units are not abundant and therefore do not display well on the charts. The database for the 1995-2000 TMP uses two different upper age class limits for different forest units. Some forest units end at the 120+ age class, while others end at the 140+ age class.



OH, PrMx, and PwMx are not abundant and do not show on the chart very well.

Figure B. Age class distribution by forest unit for the 2005-2010 FMP.

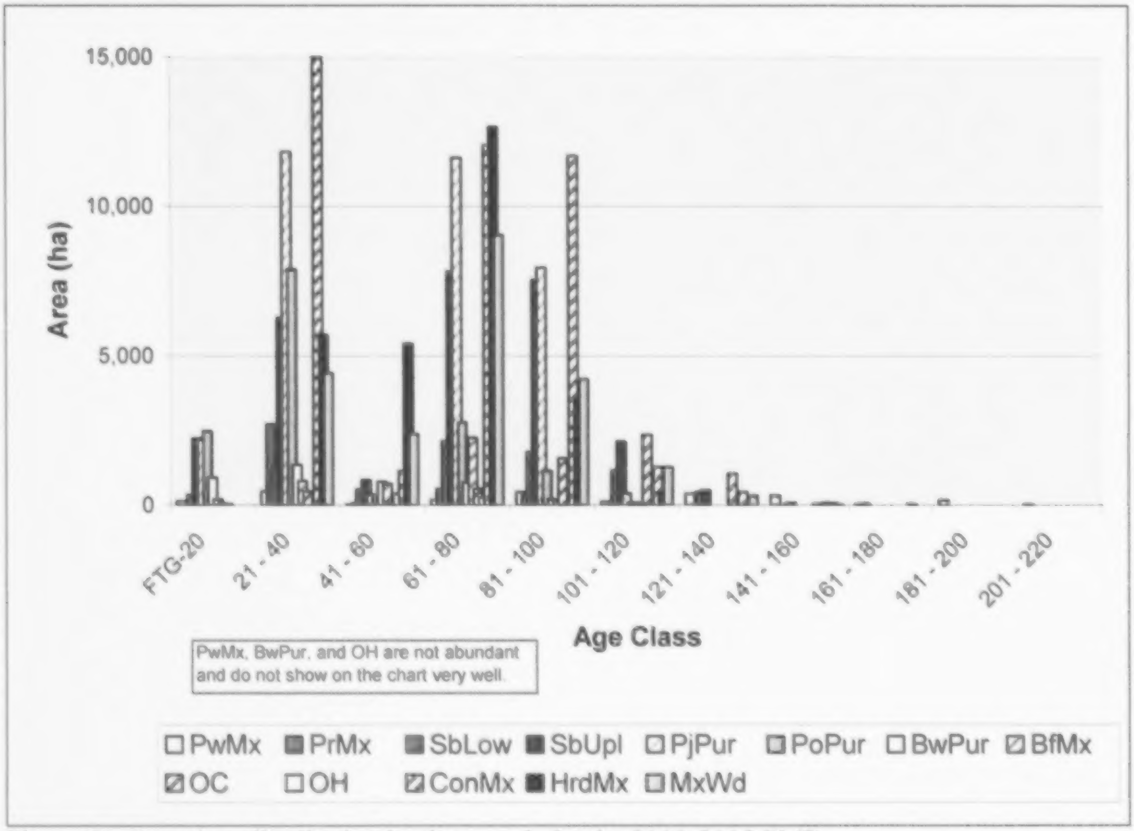
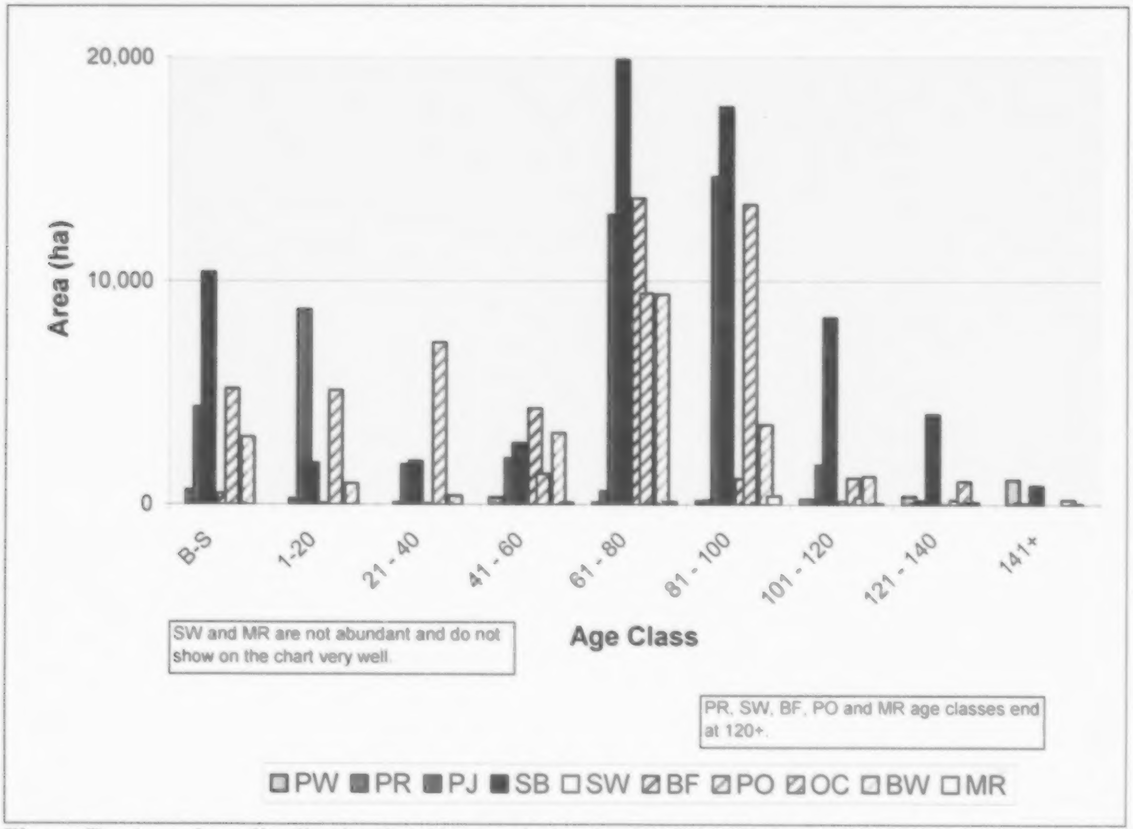


Figure C. Age class distribution by forest unit for the 2000-2005 FMP.



SW and MR are not abundant and do not show on the chart very well.

PR, SW, BF, PO and MR age classes end at 120+.

Figure D. Age class distribution by forest unit for the 1995-2000 TMP.

Figure E displays the age class distribution of all forest units combined for the three terms under review. The comparison of the classes is complicated by the differences in the way the three FMPs categorized younger age classes. The 1995-2000 TMP is the only plan to use a barren and scattered class, while other inconsistencies like the large area in the 21-40 year age class in the 2000-2005 FMP is the result of the differences in photo interpretation for the new inventory used in that FMP. A consistent trend in all three FMPs is the gap in the 41-60 year age class.

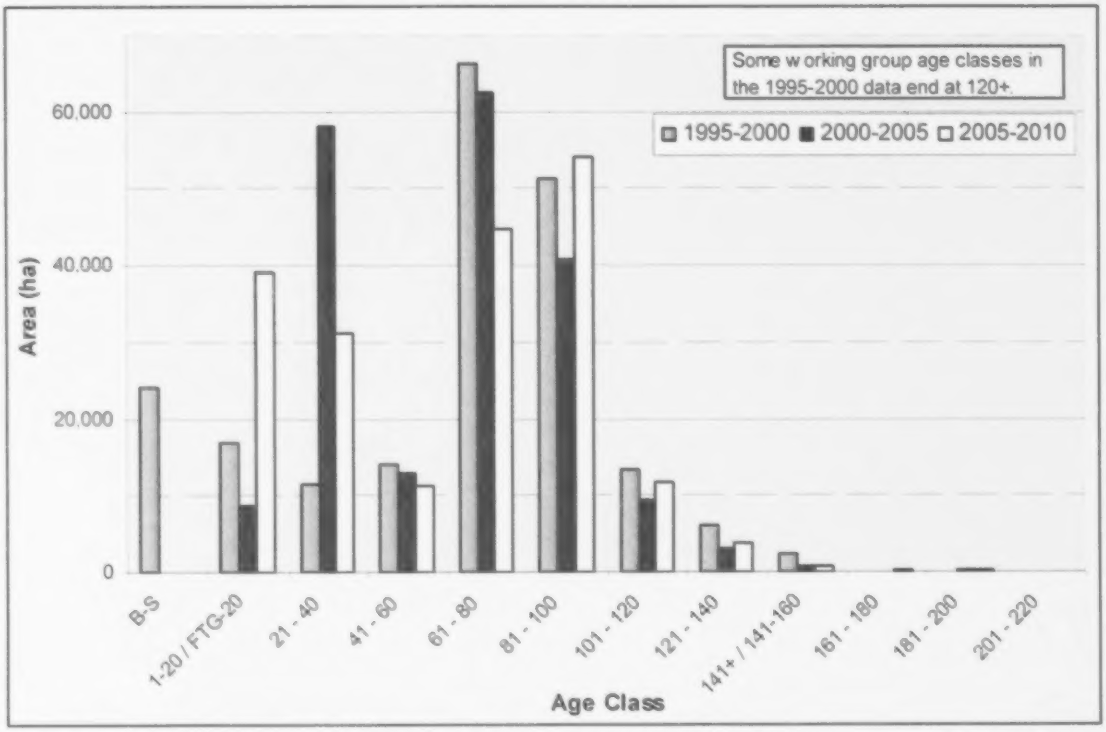


Figure E. Age class distribution of all forest units combined for the three terms under review.

7.0 Summary Report of Renewal, Tending and Protection Operations

This section summarizes the planned and actual renewal and tending operations for the three terms under review (Table 6). There were no protection activities reported during the 2005-2006 period, however a jack pine budworm infestation was discovered in the adjacent Crossroute Forest. As a result, the company has worked closely with the provincial forest health specialist and was a member of the jack pine budworm planning team. In an effort to minimize fire hazard, timber quality and outfitter concerns, the company redirected harvesting into those approved blocks with higher percentages of jack pine adjacent to the affected areas.

The areas are presented as an average per year for the terms indicated. The 2005-2010 term is based on one year of operations (2005/06). An assessment of that term is less meaningful because operations vary significantly in magnitude from year to year within a five-year term.

Natural regeneration, shown in Figure F, shows a decreasing trend as a result of more intensive silviculture. The ratios for natural to artificial are 39:61, 37:63 and 36:64 for the 1995-2000, 2000-2005 and 2005-2010, respectively. The company feels these gains are due to the following:

1. More recent plans have been able to negotiate tourism agreements with operators to permit road construction in areas to permit artificial renewal that would otherwise be left for natural regeneration.
2. The company has been undertaking aggressive silviculture treatments directly behind the harvest operations to establish planting stock ahead of any potential competition that may exist on those sites prone to competition but suitable for conversion.

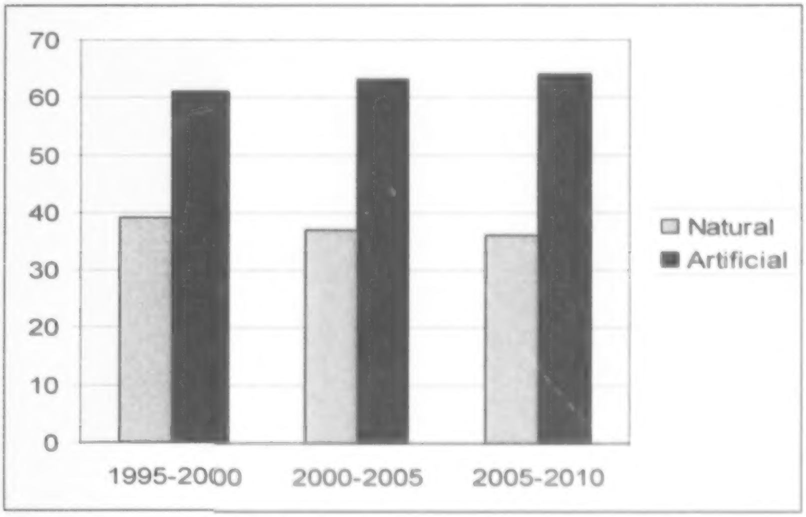


Figure F. Comparison of Natural to Artificial for terms under review

Recent down turns in the markets have forced company silviculturalists to strive for the most efficient use of renewal funds. Site preparation has been reduced primarily as a result of the company putting a greater effort into ensuring that intensive silvicultural activities, such as site preparation, are applied to the most appropriate site. A key strategy is to avoid site preparing areas thin duff with moderate/low slash loadings that be direct planted. This is achieved by inspecting the site directly after harvesting and mapping areas that have thin duff and lower slash levels. Significantly lower levels of site preparation are evident in Table 5 for the 2005-2010 term.

In Table G, tree planting increased significantly from 465 ha/yr in 1995-2000 to 693 ha/yr in 2000-2005. The first year of the 2005-2010 term also shows an increase with 858 ha/yr. At the same time there has been a trend away from seeding in both the 2000-2005 and 2005-2010 terms. This shift is due to the competitive nature of the operating units that harvesting has shifted into during these terms.

Tending in Table G shows a spike in 2000-2005 as a result of the company's aggressive direction towards the untended "Z" areas and silviculture standards that had to be addressed for "X and Y" areas.

The company actively pursued Forestry Futures Trust Funding for the aforementioned areas.
As the term ended, and with "X, Y and Z" areas promptly evaluated and treated with Forestry Futures Trust Fund (FFTF) the tending returned to past levels.

Table G. Actual Annualized Area Summary for Renewal and Tending

Activity	Term		
	1995-2000	2000-2005	2005-2010
Harvest (Ha)	1572	1603	1918
Natural Regeneration	664	575	598
Tree Plant	465	693	858
Seeding	589	268	221
Site Preparation	686	626	360
Tending - Cleaning	487	1264	509
Tending - PCT	27	184	92

Source: Table 6

Figure G shows that there is a relatively constant regeneration program throughout the periods identified above. The total regeneration planned shows a slight increase in every term as a result of more intensive GIS program that accounts for every hectare of land.

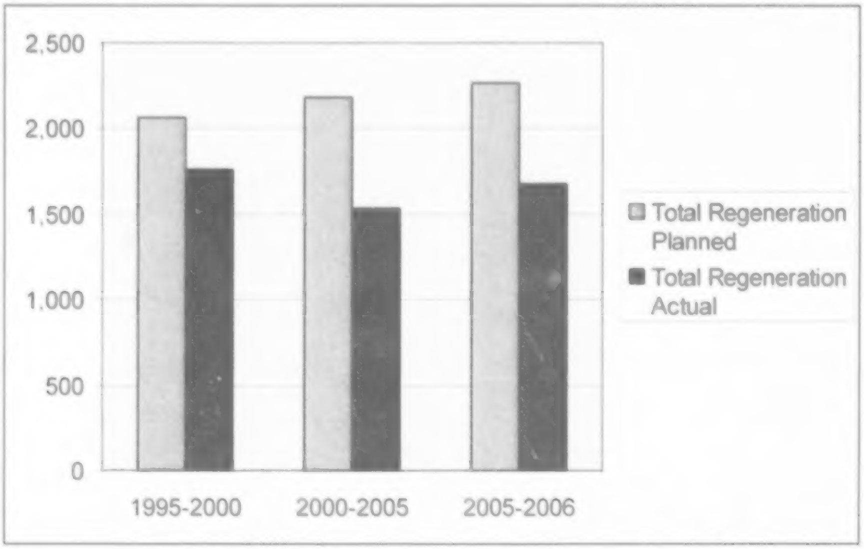


Figure G. Comparison of Planned and Actual Regeneration for 1995-2006

Table 6. Summary report of renewal, tending and protection. The 2005 term actual is based on one year (2005/2006 AR).

	Annualized Area Summary of all Forest Unit (ha)					
	1995-2000		**2000-2005**		**2005**	
	Planned	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**
Renewal						
Regeneration						
Uneven-Aged Management						
Selection Cut - Harvest						
Total Uneven-Aged Management						
Even-Aged Management						
Natural Regeneration						
Clearcut	745	664	897	575	1,027	598
Strip Cut						
Seed Tree Cut	11	11				
Uniform Shelterwood Seed Cut	11	14	4			
Subtotal Natural	767	689	901	575	1,027	598
Artificial Regeneration						
Planting	500	465	823	693	765	858
Seeding direct	797	589				
with site preparation			460	268	472	221
Scarification		13				
Subtotal Artificial	1,297	1,074	1,283	961	1,236	1,079
Total Even-Aged Management	2,064	1,763	2,184	1,536	2,263	1,677
Total Regeneration	2,064	1,763	2,184	1,536	2,263	1,677
Site Preparation						
Mechanical	1,071	650	1,258	626	1,016	360
Chemical		36				
Prescribed Burn		57				
Total Site Preparation	1,071	743	1,258	626	1,016	360
Tending						
Cleaning						
manual	40	52	100	138	50	
chemical - ground		39	85		20	119
- aerial	600	391	1,000	1,126	1,000	390
mechanical						
prescribed burn						
Spacing, pre-commercial thinning, improvement cutting						
even-aged	80	27	400	184	100	92
uneven-aged						
Cultivation						
Total Tending	720	509	1,585	1,448	1,170	601
Protection (Insect Pest Control)						
accelerated harvest						
salvage						
manual protection						
ground insecticide						
aerial insecticide						
Total Protection						

8.0 Harvested Area Successfully Regenerated

The IFAPP requires this table be completed for harvest areas from the 1992-1997 period. However, the valid harvest information needed to analyze the 1992-1997 period was not available by block, only by term (i.e., 1990-1995 or 1995-2000). Further complicating the exercise is the fact that AFP did not assume the unit from MNR until 1998. This proved to be an enormous task to gather the information given the staffing changes at both the company and MNR. In lieu of this, the MNR Regional planning representative from the Forest Management Branch - Forest Policy Section (Cathy Cavalier) was contacted and it was agreed that the most appropriate period to analyze was 1990-1995 for this section.

The Trend Analysis Report for the past IFA was approved using a different discussion of free to grow (FTG). The 2002 report discussed the trend in regenerating harvest areas since the 1985-1990 term by forest unit. At that time, the 1990-1995 term had only 13% of the harvest area declared FTG. The enhanced FTG program over the past five years resulted in a significant increase in the amount of area surveyed and declared FTG for the 1990-1995 term. Table 7 shows that 56% of the harvest area from this term is declared FTG. Of the area surveyed over the past 5 years, 82% of the area surveyed is FTG.

Using AR-14 from the 2000-2005 AR we have completed 12,773 ha of FTG surveys in an effort to update the new 2010 FMP planning database. This resulted in an overachievement of the FTG target of the FMP (117% of Planned). The area required for Table 7 was derived from intersecting the 1990-1995 harvest area with the digital 2000-2005 FTG information that is currently in the GIS data base. The intersection shows 4,239 ha of harvested areas were surveyed, declared FTG following the direct pathways associated with the silvicultural ground rules of the day, and updated in the digital records. The 1,959 ha was surveyed at the same time as the 4,239 ha however these areas shifted forest units, and was inaccurately deemed not successfully regenerated and most of the 1,959 ha had meet the current FTG standards for the regenerated forest units.

Table 7. Harvest area successfully regenerated – all forest units.

	AREA IN HECTARES (All Forest Units Combined)	***AREA IN HECTARES (All Forest Units Combined)***
	Even-aged Management	**Uneven-aged Management**
Total Area Harvested (1990-1995)	6,198	N/A
Total Area Surveyed for Regeneration Success	4,239	N/A
Total Unsurveyed Area	764	N/A
Total Area Declared Successfully Regenerated	3,475	N/A
Total Area Surveyed Not Successfully Regenerated		N/A
NSR		N/A
BCS		N/A
Not Available for Regen. (e.g. Roads & Landings)		N/A
Other	764	N/A
Percent of Area Surveyed Declared Successfully Regenerated	82.0%	N/A

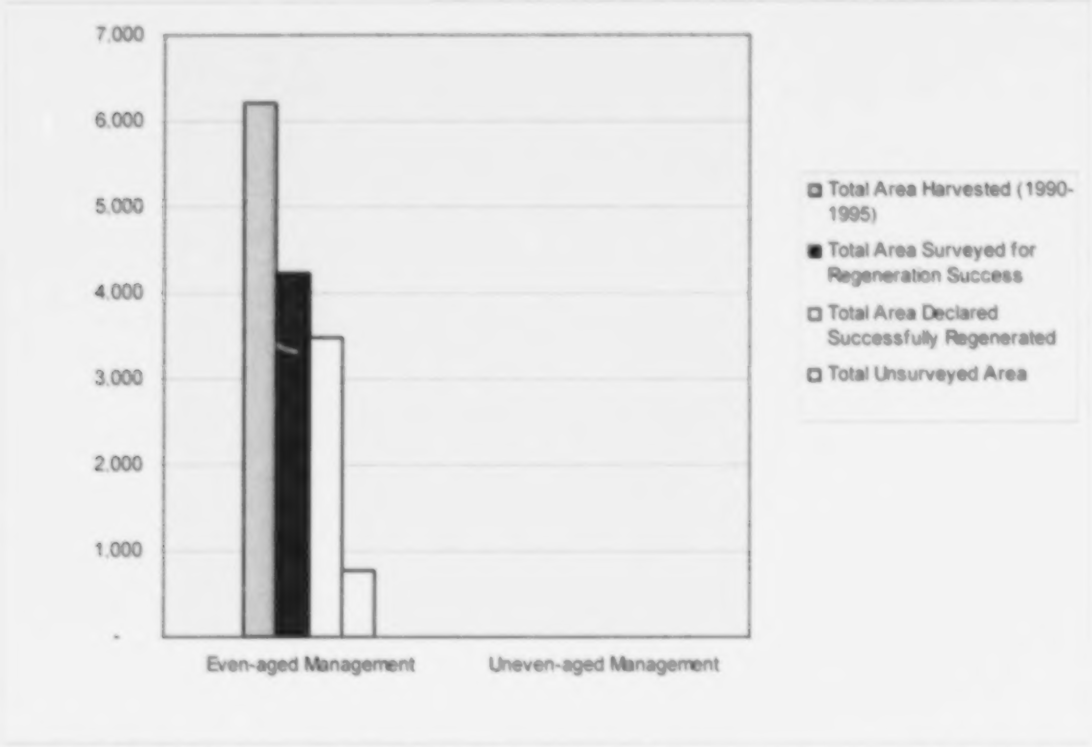


Figure 7. Graphical presentation of Table 7 - harvest area successfully regenerated for all forest units.

Most of the remaining 1,959 ha will be declared as FTG for this falls 2006-2007 Annual Report. These areas were corrected and updated accordingly in the planning inventory that was recently approved for the 2010 FMP.

Silviculture activities were successful in maintaining productive forest area on the Sapawe Forest that will become available for harvest. When natural depletions occur, the company quickly reviews for salvage harvest opportunities and subsequently treats with the appropriate silviculture treatment in order to bring back to the desired forest units.

Species conversions are consistent with the FMP objective to increase the proportion of certain forest units such as PwMx and PjDom.

9.0 Conclusion

- Forest Units have become more complex with new and improved FRI information.
- The overall trend for the audit period shows harvest volume forecasts are becoming more accurate and resulting volume achievement is more attainable.
- The overall trend from periods under review shows an increase in the utilization of the planned harvest areas.

- The company is moving towards a more intensive silviculture program on the unit over the terms reviewed.
- The company is in the process of designing a silviculture tracking system within its Geographic Resource Management software to monitor shifts in forest units and ground rules to improve ground rule development with site conditions and SFMM modelling inputs.

APPENDIX 1

Trend Analysis Table 5

Table 5. Summary of managed productive forest by forest unit (2005-2010).

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
BwDom	1-20	-	-				1,257	-
	21 - 40	-	-				300	2,094
	41 - 60	15	1,242				1,125	75,307
	61 - 80	24	1,567				6,812	566,978
	81 - 100	21	1,673				1,782	169,889
	101 - 120	-	-				104	5,050
	121 - 140	-	-				10	373
	Forest Unit Subtotal	60	4,482	-	-	-	11,390	819,691
ConMx	1-20	-	-				5,427	-
	21 - 40	11	84				10,611	271,167
	41 - 60	64	6,018				3,699	252,223
	61 - 80	125	12,940				12,655	1,355,793
	81 - 100	137	13,995				19,175	2,424,021
	101 - 120	-	-				3,443	400,165
	121 - 140	-	-				818	71,864
	141 - 160	-	-				207	8,627
	161 - 180	-	-				66	2,501
	Forest Unit Subtotal	337	33,037	-	-	-	56,101	4,786,361
HrdMx	1-20	-	-				1,100	-
	21 - 40	-	-				3,244	99,098
	41 - 60	18	1,102				2,124	153,274
	61 - 80	116	9,623				4,708	491,841
	81 - 100	-	-				3,253	377,585

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
	101 - 120	-	-				551	62,756
	141 - 160	-	-				31	1,890
	Forest Unit Subtotal	134	10,725	-	-	-	15,011	1,186,444
MxWd	1-20	-	-				536	-
	21 - 40	-	-				212	3,314
	41 - 60	7	364				574	37,721
	61 - 80	86	7,406				1,709	156,717
	81 - 100	28	3,305				610	61,870
	101 - 120	-	-				68	3,679
	141 - 160	-	-				11	687
	Forest Unit Subtotal	121	11,075	-	-	-	3,720	263,988
OC	1-20	-	-				771	-
	21 - 40	-	-				74	-
	41 - 60	-	-				147	3,964
	61 - 80	7	516				386	18,859
	81 - 100	29	1,809				1,666	150,921
	101 - 120	16	1,466				1,958	212,071
	121 - 140	27	2,347				1,253	121,360
	141 - 160	-	-				17	2,129
	161 - 180	-	-				10	525
	Forest Unit Subtotal	79	6,138	-	-	-	6,282	509,829
OH	1-20						5	-
	41 - 60						236	12,942

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
	61 - 80						287	24,418
	81 - 100						7	811
	Forest Unit Subtotal	-	-	-	-	-	535	38,171
PjDom	1-20	-	-				12,124	-
	21 - 40	14	192				8,009	230,181
	41 - 60	-	-				159	14,240
	61 - 80	-	-				6,228	886,139
	81 - 100	53	5,909				12,858	1,950,416
	101 - 120	17	1,487				1,196	182,227
	121 - 140	-	-				7	493
	Forest Unit Subtotal	84	7,588	-	-	-	40,581	3,263,696
PoDom	1-20	-					7,580	-
	21 - 40	-					6,436	277,493
	41 - 60	-					1,865	174,919
	61 - 80	41	3,030				4,765	559,708
	81 - 100	-					4,500	455,313
	101 - 120	-					421	33,719
	141 - 160	-					19	1,467
	Forest Unit Subtotal	41	3,030	-	-	-	25,586	1,502,619
PrDom	1-20						2,162	496
	21 - 40						291	26,965
	61 - 80						309	77,645
	81 - 100						201	43,420

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
	121 - 140						25	4,766
	141 - 160						8	1,507
	Forest Unit Subtotal	-	-	-	-	-	2,996	154,799
PrMx	1-20						687	186
	21 - 40						330	8,302
	41 - 60						31	4,301
	61 - 80						681	122,708
	81 - 100						449	79,521
	101 - 120						28	4,991
	141 - 160						17	1,473
	161 - 180						32	2,506
	Forest Unit Subtotal	-	-	-	-	-	2,255	223,988
PwMx	1-20	-	-				623	-
	41 - 60	-	-				113	7,468
	61 - 80	-	-				212	23,000
	81 - 100	5	719				416	49,330
	101 - 120	15	1,689				214	28,539
	121 - 140	-	-				392	53,062
	141 - 160	-	-				343	38,260
	161 - 180	-	-				35	3,372
	181 - 200	-	-				163	20,398
	201 - 220	-	-				2	223
	Forest Unit Subtotal	20	2,408	-	-	-	2,513	223,652
SbLow	1-20							-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
		-	-				822	
	21 - 40	-	-				488	913
	41 - 60	-	-				545	12,395
	61 - 80	203	11,932				1,657	112,759
	81 - 100	523	36,747				2,193	205,291
	101 - 120	182	18,513				1,166	132,886
	121 - 140	75	8,318				552	59,222
	141 - 160	16	1,365				54	5,725
	201 - 220	3	21				4	41
	Forest Unit Subtotal	1,002	76,896	-	-	-	7,481	529,232
SpUpl	1-20	-	-				5,964	-
	21 - 40	-	-				1,171	11,559
	41 - 60	-	-				709	23,429
	61 - 80	7	254				4,330	380,441
	81 - 100	50	4,461				7,025	798,184
	101 - 120	3	549				2,444	336,018
	121 - 140	12	1,034				764	85,523
	141 - 160	-	-				87	8,564
	Forest Unit Subtotal	72	6,298	-	-	-	22,494	1,643,718
	Total	1,950	161,677	-	-	-	196,945	15,146,188

Table 5. Summary of managed productive forest by forest unit (2000-2005).

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
PwMx	FTG-20						126.3	
	21-40						455.7	1,723.8
	41 - 60						13.7	1,234.6
	61 - 80						173.3	19,969.3
	81 - 100						436.0	54,248.1
	101 - 120	5.4	669.1				104.4	13,507.4
	121 - 140	14.6	1,686.7				381.8	52,633.5
	141 - 160						308.7	32,970.3
	161 - 180						30.5	2,870.7
	181 - 200						163.6	19,200.2
	201 - 220						22.1	2,428.8
	Forest Unit Subtotal	20	2,356	-	-	-	2,216	200,787
PrMx	FTG-20						14.4	
	21-40						2,709.4	17,833.6
	41 - 60						51.6	9,700.8
	61 - 80						537.0	115,692.3
	81 - 100						331.0	70,970.2
	101 - 120							
	121 - 140						29.0	4,699.0
	141 - 160						22.1	2,860.3
	161 - 180						31.8	3,549.7
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	-	-	-	-	-	3,726	225,306
SbLow	FTG-20						330.6	
	21-40						1,284.5	1,742.4
	41 - 60						523.2	13,303.2
	61 - 80	316.7	19,172.3				2,137.3	152,685.8
	81 - 100	425.7	43,611.1				1,767.6	180,262.9
	101 - 120	193.3	21,245.3				1,154.9	141,613.9
	121 - 140	54.3	6,400.2				433.3	48,516.3
	141 - 160	13.4	1,081.1				20.2	1,887.9

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	1,003	91,510	-	-	-	7,652	540,012
SbUpl	FTG-20						2,230.6	
	21-40						6,269.4	10,979.3
	41 - 60						835.5	54,108.5
	61 - 80						7,814.5	950,442.9
	81 - 100	26.9	2,867.6				7,522.0	1,087,393.6
	101 - 120	3.4	602.6				2,117.2	314,292.8
	121 - 140	12.1	1,112.8				489.5	68,834.0
	141 - 160						80.0	7,115.3
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	42	4,583	-	-	-	27,359	2,493,166
PjPur	FTG-20						2,225.4	
	21-40	14.5	182.7				11,813.0	43,259.0
	41 - 60						340.8	34,078.0
	61 - 80						11,615.2	1,582,898.1
	81 - 100	80.8	8,421.9				7,938.0	1,132,824.6
	101 - 120						393.9	53,784.0
	121 - 140						4.2	231.8
	141 - 160							
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	95	8,605	-	-	-	34,331	2,847,076
PoPur	FTG-20						2,470.5	
	21-40						7,891.8	108,794.4
	41 - 60						341.0	40,140.4
	61 - 80						2,772.9	464,213.8
	81 - 100						1,148.4	177,267.5
	101 - 120						88.6	6,458.1

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
	121 - 140							
	141 - 160							
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	-	-	-	-	-	14,713	796,874
BwPur	FTG-20						915.8	
	21-40						1,339.9	1,305.4
	41 - 60	15.2	1,622.9				779.9	73,191.1
	61 - 80	24.4	1,788.7				749.3	75,624.8
	81 - 100						187.5	19,722.3
	101 - 120							
	121 - 140							
	141 - 160							
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	40	3,412	-	-	-	3,972	169,844
BfMx	FTG-20						191.0	
	21-40						812.0	12,107.2
	41 - 60	20.4	1,477.8				709.9	60,826.5
	61 - 80	64.7	6,958.5				2,256.5	236,655.9
	81 - 100						129.0	16,216.3
	101 - 120						80.4	8,690.5
	121 - 140							
	141 - 160							
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	85	8,436	-	-	-	4,179	334,496
OC	FTG-20						41.6	
	21-40						456.9	
	41 - 60						73.5	1,732.8
	61 - 80	7.4	346.3				550.8	30,344.4

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
	81 - 100	29.3	1,761.6				1,567.0	142,486.7
	101 - 120	16.3	1,483.3				2,345.9	268,125.0
	121 - 140	27.0	4,169.8				1,044.5	109,863.6
	141 - 160						35.5	4,307.5
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	80	7,761	-	-	-	6,116	556,860
OH	FTG-20						30.5	
	21-40							
	41 - 60						381.1	27,720.4
	61 - 80						257.8	25,338.1
	81 - 100						78.7	7,590.2
	101 - 120							
	121 - 140							
	141 - 160							
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	-	-	-	-	-	748	60,649
ConMx	FTG-20							
	21-40	10.5	110.3				14,965.8	181,913.2
	41 - 60						1,138.6	98,746.4
	61 - 80	61.7	6,010.3				12,040.0	1,650,661.1
	81 - 100	87.1	10,719.2				11,682.6	1,733,520.0
	101 - 120						1,274.2	170,901.7
	121 - 140						428.8	36,643.7
	141 - 160						71.8	3,077.6
	161 - 180						31.2	1,277.7
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	159	16,840	-	-	-	41,633	3,876,741
HrdMx	FTG-20							
	21-40						5,701.5	133,584.9

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
	41 - 60	130.8	8,551.9				5,400.1	497,251.3
	61 - 80	66.9	7,029.6				12,642.6	1,519,678.4
	81 - 100	1.8	186.8				3,637.6	449,428.7
	101 - 120						425.9	49,361.4
	121 - 140							
	141 - 160						54.2	1,084.0
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	200	15,768	-	-	-	27,862	2,650,389
MxWd	FTG-20							
	21-40						4,419.3	82,960.6
	41 - 60	81.3	4,414.6				2,375.1	120,894.3
	61 - 80	121.6	10,747.3				9,038.4	775,792.9
	81 - 100						4,209.5	424,661.5
	101 - 120						1,274.1	138,435.4
	121 - 140						310.5	21,933.2
	141 - 160						17.4	438.5
	161 - 180							
	181 - 200							
	201 - 220							
	Forest Unit Subtotal	203	15,162	-	-	-	21,644	1,565,116
	Total	1,928	174,432	-	-	-	196,151	16,317,316

Table 5. Summary of managed productive forest by forest unit (1995-2000).

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m3)	(ha)	(m^3)		(ha)	(m^3)
PW	B-S						-	
	0-20						-	
	21-40						-	

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m3)	(ha)	(m^3)		(ha)	(m^3)
	41-60						320.0	
	61-80						79.0	
	81-100						168.0	
	101-120						246.0	
	121-140						386.0	
	141+						1,115.0	
	Forest Unit Subtotal	-					2,314.0	
PR	B-S						636.0	
	0-20						254.0	
	21-40						83.0	
	41-60						-	
	61-80						592.0	
	81-100						198.0	
	101-120						-	
	120+						64.0	
	Forest Unit Subtotal	-					1,827.0	
PJ	B-S						4,348.0	
	0-20						8,709.0	
	21-40						1,781.0	
	41-60						2,071.0	
	61-80						12,951.0	
	81-100						14,642.0	
	101-120						1,758.0	
	121-140						193.0	
	141+						40.0	

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m3)	(ha)	(m^3)		(ha)	(m^3)
	Forest Unit Subtotal	783.0					46,493.0	
SB	B-S						10,376.0	
	0-20						1,849.0	
	21-40						1,931.0	
	41-60						2,747.0	
	61-80						19,863.0	
	81-100						17,760.0	
	101-120						8,354.0	
	121-140						4,032.0	
	141+						843.0	
	Forest Unit Subtotal	1,054.0					67,755.0	
SW	B-S						-	
	0-20						46.0	
	21-40						-	
	41-60						-	
	61-80						-	
	81-100						-	
	101-120						5.0	
	120+						-	
	Forest Unit Subtotal	-					51.0	
BF	B-S						489.0	
	0-20						50.0	
	21-40						45.0	
	41-60						4,285.0	
	61-80							

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m3)	(ha)	(m^{3})		(ha)	(m^{3})
							13,672.0	
	81-100						1,156.0	
	101-120						152.0	
	120+						8.0	
	Forest Unit Subtotal	28.0					19,857.0	
PO	B-S						5,170.0	
	0-20						5,104.0	
	21-40						7,235.0	
	41-60						1,367.0	
	61-80						9,438.0	
	81-100						13,396.0	
	101-120						1,177.0	
	120+						222.0	
	Forest Unit Subtotal	1,191.0					43,109.0	
OC	B-S						14.0	
	0-20						-	
	21-40						6.0	
	41-60						-	
	61-80						92.0	
	81-100						109.0	
	101-120						342.0	
	121-140						1,029.0	
	141+						216.0	
	Forest Unit Subtotal	33.0					1,808.0	
BW	B-S						3,017.0	

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m3)	(ha)	(m^3)		(ha)	(m^3)
	0-20						942.0	
	21-40						398.0	
	41-60						3,204.0	
	61-80						9,396.0	
	81-100						3,569.0	
	101-120						1,251.0	
	121-140						119.0	
	141+						36.0	
	Forest Unit Subtotal	343.0					21,932.0	
MR (red maple)	B-S						-	
	0-20						-	
	21-40						-	
	41-60						85.0	
	61-80						137.0	
	81-100						381.0	
	101-120						43.0	
	120+						-	
	Forest Unit Subtotal	-					646.0	
Total		3,432.0					205,792.0	-

Appendix B

Audit Team Members and Responsibilities

Audit Team Members and Responsibilities

Name	Role	Responsibilities	Credentials
Rod Seabrook, CEA (SFM), EMS (LA)	Lead Auditor and Wildlife/Ecology Auditor	Overall audit coordination and oversight of activities of the audit team; Review of management objectives, contractual obligations, and forest sustainability; Inspect AOC documentation and practices; Audit aspects of forest management related to environmental protection and wildlife practices.	M.Sc. Biology, 27 years forestry experience in Ontario; auditor on 17 Independent Forest Audits (12 as lead auditor), over 50 ISO 14001 audits, and over 25 sustainable forest management system audits in Canada and the United States.; certified environmental auditor (sustainable forest management) and environmental management system lead auditor.
Dave Thomson, R.P.F.	Forest Management Planning Auditor	Review of forest management planning requirements and public participation; Assist in assessment of achievement of management objectives and forest sustainability.	H.BSc.F.; 28 years of forestry and resource management experience in Ontario and Manitoba; certified environmental auditor with the Quality Management Institute; completed ISO 14001 lead-auditor training; Audit Secretariat and/or Planning Auditor on five Independent Forest Audits; Auditor or Lead Auditor (in training) on three environmental or forest certification audits.
Peter Higgelke R.P.F.	Harvesting Operations Auditor	Assess access and harvest planning and implementation; Review compliance program planning and implementation; Assist in assessment of achievement of management objectives and forest sustainability.	M.Sc.F; 27 years forestry experience in Ontario, Quebec, and Germany; Lead Auditor for one Independent Forest Audit; Wildlife Auditor on one Forest Management Agreement (FMA) Review and six Independent Forest Audits; Forestry Auditor on five previous Independent Forest Audits.
Laird Van Damme R.P.F.	Silviculture Operations Auditor	Assess silvicultural planning and operations; Assist in assessment of achievement of management objectives and forest sustainability.	M.Sc.F.; 21 years experience as a practising forester, educator and consultant; primary areas of practice are silviculture, forest management and forest research; forestry auditor and Lead Auditor on 13 previous Independent Forest Audits; attended five-day ISO 14001 EMS Lead Auditor training course.
Susan Jarvis, R.P.F.	Forest Modelling Auditor	Review SFMM strategic planning; Assist in assessment of achievement of management objectives and forest sustainability.	H.BSc.F; over 20 years of forest management planning experience in northern Ontario; plan coordinator/author and planning team member for 11 recent CFSA Crown land forest management plans; reviewed or assisted in the preparation of approximately 25 timber management plans; completed an ISO 14000 Environmental Management Systems Essentials Course; participated in two IFAs as Forest Management Planning Specialist, and ten IFAs as SFMM auditor.
Sonia Colombo	Audit Administration	Coordinate audit logistics.	Dipl. For. Tech.; over 25 years experience in Ontario forestry; specializes in tree seedling production and testing; conference coordination.

Appendix C

Independent Forest Audit Guiding Principles

Independent Forest Audit Guiding Principles

Guiding Principles within the Independent Forest Audit Process and Protocol
1. Commitment
Commitment is reflected in vision, mission and policy statements of the company. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.
2. Public Participation
The process of sustainable forest planning, implementation and monitoring is conducted in an open consultative fashion, with input from all members of the planning team, Local Citizens Committee, native groups, and other parties with an interest in the operations of the forest unit.
3. Forest Management Planning
The forest management planning process involves the input of a number of individuals and groups to describe the current condition of the forest, the values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve that goal. Certain minimum standards and procedures have been established upon which all management units are evaluated.
4. Plan Implementation
Verification of the actual results of operations in the field compared to the planned operations is required to be able to assess achievement of the plan objectives and compliance with laws and regulations. In conjunction with the review of operations, the reporting tables are tested to ensure accurate results are reported.
5. System Support
System support concerns resources and activities needed to support plan implementation so as to achieve the desired objectives. Appropriate control, documentation and reporting procedures must be in place and operational. Planned action should occur at planned times, in planned places and to the planned degree.
6. Monitoring
The activities and the effects of these activities in achieving management objectives must be regularly measured and assessed. In particular, the indicators of achievement must be assessed and their effectiveness reviewed.
7. Achievement of the Management Objectives and Forest Sustainability
Periodic assessments of the management of the forest unit operations and the forest unit must be made in order to determine whether forest sustainability and other management objectives are being achieved. This includes comparing the actual values of the predetermined indicators against the planned values and assessing the reasons for any significant deviations.
8. Contractual Obligations
The licensee must comply with the specific licence requirements.

Appendix D

List of Acronyms

List of Acronyms

AFP	Atikokan Forest Products Ltd.
AHA	Available Harvest Area
AOC	Area of Concern
AR	Annual Report
AWS	Annual Work Schedule
BNV	Bounds of Natural Variation
CFSA	Crown Forest Sustainability Act
EMS	Environmental Management System
ES	Ecosite
FFC	Forestry Futures Committee
FMNCP	Forest Management Native Consultation Program
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FOP	Forest Operation Prescriptions
FRI	Forest Resource Inventory
FTG	Free to Grow
GIS	Geographic Information System
HPA	High Priority Aspects
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
KBM	KBM Forestry Consultants Inc.
LCC	Local Citizens Committees
MAFA	Moose Aquatic Feeding Areas
MNR	Ministry of Natural Resources
MOA	Memorandum of Agreement
NHIC	Natural Heritage Information Centre
NBR	Natural Benchmark Run
NDPEG	Natural Disturbance Pattern Emulation Guideline
NOEGTS	Northern Ontario Engineering and Geological Terrain Survey
OLL	Ontario's Living Legacy
RBTO	Resource Based Tourism Operators
RPFO	Report of Past Forest Operations
RSA	Resource Stewardship Agreement
SEV	Statement of Environmental Values
SEIM	Socio-Economic Impact Model
SEM	Silviculture Effectiveness Monitoring
SFIS	Sustainable Forestry Initiative Standard
SFL	Sustainable Forest Licence
SFM	Sustainable Forest Management
SFMM	Strategic Forest Management Model
SGR	Silviculture Ground Rules
SMA	Selected Management Alternative
TAR	Trend Analysis Report
TOR	Terms of Reference
WLON	Wabigoon Lake Ojibway Nation

Appendix E

Summary of Input to the Audit Process

Summary of Input to the Audit Process

General Public and Other Stakeholders:
KBM solicited input into the audit via newspaper advertisements, direct mailings to all organizations and to all individuals on the FMP mailing list for the Sapawe Forest provided by MNR, and through a notice posted on the local Atikokan television channel. Five comments were received and are summarized below.

Issue or Comment	How Issue was Addressed by the Audit Team
Concerned over utilization of hardwood because of lack of mill demand.	Approach to addressing issue reviewed.
None	Not required.
Glad to see blowdown harvested; Concerned with large clearcuts.	Examined plan and in field.
Wood fibre being used in road base; Wood fibre being left in skidways; Spraying Vision reduces deciduous crop; Poor tree survival.	Utilization checked in field. Planning/use of herbicide reviewed. Tree planting survival checked in field.
Forest should be dissolved and incorporated into adjoining units. Concerned that the timing of notification of available deciduous fibre is too late. Company should not use herbicides to promote a coniferous landbase. Modeling to a mixedwood is a more realistic approach. MNR must revisit its public consultation process and actively engage and seek out comments (regarding annual reporting of operations) not just at the LCC level. The percentage of individual tree species being left as residuals (leave trees) after harvest, may not be representative of the pre-harvest stand.	Policy issue, not addressed during audit. Commenter interviewed by audit team.

Local Citizens Committee:
On the evening of September 17, 2007 members of the audit team met with the Resource Management Advisory Committee (RMAC). Comments are summarized below. A representative of the Atikokan LCC participated on the preaudit meeting, field audit and closing meeting. The audit team met with the LCC on the evening of September 17, 2007.

Native Communities:
Individual letters were sent to four First Nations on or adjacent to the Sapawe Forest (Lac Des Milles Lac First Nation, Lac La Croix First Nation, Seine River First Nation, and Wabigoon Lake Ojibway Nation) informing them of the audit and asking for their participation. The three communities considered within or adjacent to the Sapawe Forest, or involved during the audit period (Lac Des Milles Lac First Nation, Seine River First Nation, and Wabigoon Lake Ojibway Nation) were interviewed by telephone during the audit. There were no overall concerns and First Nations representatives expressed a good working relationship with MNR and AFP.

Overlapping Licensees, Contractors and Commitment Holders:
A public survey was distributed to overlapping licensees, contractors and commitment holders on the Sapawe Forest to solicit input and to provide each respondent with an opportunity to identify and discuss any site-specific concerns. Both commitment holders, Manitou Forest Products Limited and Fibratech were subsequently contacted directly by telephone.

SFL Holder:
AFP provided significant input to the audit process. This included providing background information and participating in the pre-audit meeting field audit and interviews. Staff included the SFL Manager, Operations Foreman, Silviculture Forester and AFP's Silviculture Consultant. This allowed for a detailed review of the history and effectiveness of operations. The closing meeting was well attended by AFP and Buchanan Forest Products Ltd. staff including the Chief Forester and Vice President of Forest Planning. Clarification of factual information was provided in writing and during additional personal interviews while the audit report was reviewed.

Ministry of Natural Resources:
MNR Atikokan area staff, including the Area Forester, Area Supervisor, Area Biologist and Area Technicians participated in various aspects of the audit, and provided input and information to the audit during both the office and field portions of the audit. The Area Forester also participated in the initial site selection process with AFP staff and the audit team. The District Manager participated in the preaudit and closing meetings.

The Forestry Futures Analyst participated in the preaudit and closing meetings and observers from the Northwest Region and Forest Management Branch attended one day of the field audit.

Appendix F

Public Survey

KBM FORESTRY CONSULTANTS INC.
2007 INDEPENDENT FOREST AUDIT
PUBLIC SURVEY

Every five years, as part of the Province's responsibility for resource management in Ontario, the Ministry of Natural Resources (MNR) contracts firms to evaluate forest management activities on Crown lands. KBM Forestry Consultants Inc. of Thunder Bay, Ontario has been engaged by the MNR this year to conduct an independent forest audit of the Sapawe Forest for the period 2002-2007.

As part of our evaluation, we would appreciate your input as a member of the public with an interest in forest management on the Sapawe Forest. If you have comments related to forestry activities during the five-year period April 1, 2002 to March 31, 2007, please complete and submit this form (please see back of sheet for more information on the audit process).

KBM provides this opportunity to comment on the Sapawe Forest audit, under the authority of Ontario Regulation 160/04 made under the Crown Forest Sustainability Act, 1994. Any personal information provided will be used solely by the audit team as input to the Sapawe Forest Independent Forest Audit. Any questions regarding the collection, use, and retention of the personal information can be directed to Rod Seabrook, Lead Auditor at 807-345-5445 ext. 261 (email: rsea@kbm.on.ca) or to the company address indicated below.

Name:
(optional)

Tel. and/or email:
(optional)

What is your interest in forest management on the Sapawe Forest?

Recreation ☐
Employment (forestry, tourism, etc.) ☐
Conservation ☐
Other:

Can you identify any specific locations or activities on the Sapawe Forest that illustrate good OR poor management practices, and that the audit team should be aware of in conducting their evaluation? Please provide details.

Have you ever contacted forest managers with comments or concerns during the 2002-2007 audit period?
(e.g., local Ministry of Natural Resources, Atikokan Forest Industries.) ☐**Yes** ☐**No**

If yes, were you satisfied with the response? ☐**Yes** ☐**No**

Feel free to add any additional comments (use additional sheet if required).

6. Please indicate if we may contact you for more information. ☐**Yes** ☐**No**
(If Yes ensure that you have provided your contact information above.)

Please **mail, email, or fax** the completed survey (Attention: Sonia Colombo) to the address/fax number below by **Friday, August 10, 2007**.

The survey can also be accessed through our website, located at www.kbm.on.ca

Although we cannot respond to everyone, we do take into consideration all comments received.
Thank you in advance for your input.

INDEPENDENT FOREST AUDIT

Sapawe Forest

KBM Forestry Consultants Inc. has been retained by the Ministry of Natural Resources (MNR) to conduct an Independent Forest Audit, consistent with the Crown Forestry Sustainability Act, on the management of the Sapawe Forest.

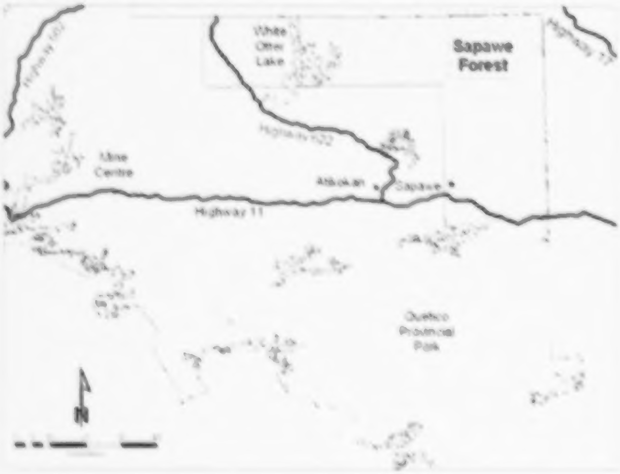
The audit covers the April 1, 2002 to March 31, 2007 operating period. You are invited to comment on the forest management activities on the Sapawe Forest for this period of time. Please mail, email, or fax this form to:

Sonia Colombo
KBM Forestry Consultants Inc.
349 Mooney Ave., Thunder Bay, ON P7B 5L5
scolombo@kbm.on.ca
Tel: (807) 345-5445 ext. 234
Fax: (807) 345-3440
Toll-Free: 1-800-465-3001

(All correspondence sent to KBM is confidential).

Alternatively, comments can be made directly to the Local Citizens Committee Chairpersons:

Larry Ogden, Co-Chair
Resource Management Advisory Committee
P.O. Box 1953
Atikokan, ON P0T 1C0
or
Marie Warren, Co-Chair
Resource Management Advisory Committee
P.O. Box 385
Atikokan, ON P0T 1C0



(The privacy of any information given to the LCC may not necessarily be protected).

Comments must be received by **Friday, August 10, 2007**

Purpose of the Independent Forest Audit

The purpose of the audit is to assess:
- compliance with the *Crown Forest Sustainability Act*,
- compliance with the Forest Management Planning Process,
- a comparison of planned versus actual forest management activities,
- the effectiveness of forest management activities in achieving audit criteria and management objectives,
- assess the effectiveness of previous audit action plans, and
- where applicable, a licensee's compliance with the terms and conditions of the Sustainable Forest Licence.

The six-member audit team will evaluate forest management planning and practices such as harvest operations, forest renewal activities, road construction and maintenance as well as opportunities for public input and First Nations consultation. The main objectives of the audit are to assess compliance with provincial laws and regulations as well as comment on the effectiveness and sustainability of forestry activities on the management unit.

In addition, the independent forest audit provides an opportunity to improve Crown land management in Ontario through adaptive management. The audits are conducted by consultants that are independent of the Ministry of Natural Resources and the companies being audited, and firms are selected in an arms-length process by the Forestry Futures Committee of Ontario.

Appendix G

Public Notification

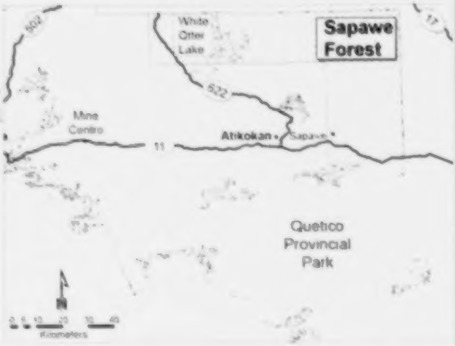
Public Notification

SAPAWE FOREST
INDEPENDENT FOREST AUDIT

KBM Forestry Consultants Inc. of Thunder Bay, Ontario has been retained by the Ontario Ministry of Natural Resources to conduct an Independent Forest Audit,consistent with the Crown Forest Sustainability Act on the management of the Sapawe Forest. The purpose of the audit is to assess forest management activities within the Sapawe Forest during the five-year audit period from April 1, 2002 to March 31, 2007. Specifically:

- compliance with the Crown Forest Sustainability Act;
- compliance with the Forest Management Planning process;
- a comparison of planned versus actual forest management activities;
- the effectiveness of forest management activities;
- the effectiveness of previous audit action plans; &
- compliance with the terms and conditions of the Sustainable Forest Licence.

You are invited to comment on forest operations on the Sapawe Forest for this period of time. Please provide your comments by **FRIDAY, AUGUST 31, 2007** directly to the Local Citizens Committee:



Sapawe Forest LCC Chair
Larry Ogden
Box 1953
Atikokan, ON P0T 1C0

The privacy of information given to the LCC may not necessarily be protected.

Alternatively, comments can be sent directly to:

Sonia Colombo
KBM Forestry Consultants Inc.
349 Mooney Avenue
Thunder Bay, ON P7B 5L5
Tel: 807-345-5445 ext. 234
Fax: 807-345-3440
Toll Free: 1-800-465-3001
Email: scolombo@kbm.on.ca

All correspondence sent to KBM is strictly confidential.

For more information or to download and complete our public audit survey please visit: www.kbm.on.ca